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Relationships between Learning Disabilities
And
The Original Seven Multiple Intelligences
And
Strategies to Incorporate The Two Domains

A Research Project submitted in partial fulfillment of the requirements
for the degree of

MASTER OF EDUCATION

To the faculty of the department of

EDUCATION

At

LYNN UNIVERSITY

Boca Raton, Florida
by

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Submitted

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CHAPTER 1

Introduction

Two "hotbed" topics in the realm of education are learning disabilities and The Theory of Multiple Intelligence. Learning disabilities are problems that impede learning for children, adolescents, and adults. These problems negatively affect individuals' schooling, transition into adult life, and adjustments into society. The Theory of Multiple Intelligences is a relatively new concept in regard to measuring an individual's intelligence or cognitive ability. Instead of concentrating on language and logical abilities to assess someone's potential, the Theory of Multiple Intelligences produces a broader view.

I have researched both topics and have tried to ascertain, whether or not a relationship exists between the two emerging concepts. By using a learning inventory and observing and learning disabled students, this researcher concentrated on finding a correlation between the cluster of intelligences and learning disabled individuals. The researcher investigated whether the learning disabled students have a cluster of potential intelligences in the realm of traditional intelligence; linguistic and logical intelligence; or can variances and uniqueness of intelligences to every individual be illustrated. Will the cluster of intelligences present themselves in the traditional mode of intelligence or in more non-traditional fields of intelligences? Strategies were developed to motivate and instruct our exceptional students.

Learning Disabilities

The term learning disabilities refers to a neurological disorder related to differences in the way the brain works or is structured. These differences affect a person's ability to speak, listen, read, write, spell, reason, organize information, or do mathematics. Individuals with learning disabilities generally will struggle academically because of these differences. However, with early intervention and the right support, students with learning disabilities can and will succeed. (Lerner, 2000)

The phenomenon of learning disabilities is not unique to the United States or to English speaking nations. Rather, it occurs in all languages, nations, and cultures. Emerging research has illustrated that there are children from all cultures who possess normal intelligence, yet have extreme difficulty in learning. By learning, we mean development of oral language, acquiring reading or writing skills, and /or doing mathematics. Thus, learning disabilities is a worldwide problem that needs to be addressed and strategies are needed to reach these individuals. (Ibid)

The term learning disabilities is a relatively new concept. It was introduced in 1963 by a group of concerned parents and teachers in the Chicago area whose children had various difficulties with school. They decided to unite in order to protect and serve their children. Upon meeting, the term Learning Disabled was introduced and had an immediate appeal. This group of parents and educators later became the organization known today as the Learning Disabilities Association (LDA). (Ibid)

Although the term learning disability was immediately accepted, the arduous task lay ahead in defining the term. Formulating a definition that is agreeable to all has been, and continues to remain, insurmountable. Many definitions have been suggested through the years, however, each one has been judged, by some, to have deficiencies. (Ibid)

The most widely accepted definition first appeared in 1975 in Public Law 94-142, the Education for All Handicapped Children Act. It was also incorporated in Public Law 101-476, the Individuals with Disabilities Education Act (IDEA), and is apparent in the 1997 Amendments to IDEA (Public Law 105-17). This definition of learning disabilities is the basis of most state definitions and is used by many schools across the nation. (Ibid)

There are two integral parts of the federal definition. The first part reads as follows:

"The term "specific learning disability" means those children who have a disorder in one or more of the basic psychological processes involved in understanding or in using

language, spoken or written, which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include a learning problem which is primarily the result of visual, hearing, or motor handicaps, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage." (Ibid)

The second part of the federal definition is considered operational. It first appeared in a separate set of regulations for students with learning disabilities. The regulation states that a student has a specific learning disability if (1) the student does not achieve at the proper age and ability levels in one or more specific areas when provided with appropriate learning experiences and (2) the student has a severe discrepancy between achievement and intellectual ability in one or more of these seven areas:

1. Oral expression
2. Listening comprehension
3. Written expression
4. Basic Reading skills
5. Reading comprehension
6. Mathematics calculation
7. Mathematics reasoning

The prevalence of learning disabilities varies widely because of the ambiguity of the definition, and the variance of the criteria used to determine the disability. Learning disabled students make up approximately 1 percent to 30 percent of the school population, with about 5 percent receiving special accommodations in the schools. (Lerner, 2000)

Even though the numbers of learning disabled students are as much of an enigma as its definition, it can easily be determined that the numbers have increased. In 1977-1978, fewer than 800,000 students were diagnosed with learning disabilities, 1.8 percent of the school population compared to the 2.6 million students or 5.5 percent of the school population in 1996-1997. In fact, learning disabilities significantly leads the field of disabilities by making up over fifty percent of all children who are diagnosed with a disability. (Ibid)

There are several reasons why there has been such an increase in learning disabilities. First of all, there has been an increase of awareness of the disabilities. As public awareness increased, so did the pressure on schools from concerned parents, educators, and students to provide the appropriate services for individuals with learning disabilities. Secondly, there has been marked improvement in procedures for identifying and assessing learning disabilities. As assessment techniques improved, the unidentified child became less likely to go unnoticed. The third explanation is closely related to the first. As public awareness increased so did the acceptance and preference for the classification of learning disabilities. The term learning disability does not possess the negative stigma that it once had; thus parents, students, and educators became less reluctant to classify students. Lastly, as the numbers of learning disabled students increased, the numbers of students with mental retardation decreased. Thus, it has been postulated that many students, who, at one time, would have been diagnosed as mildly mentally handicapped, are now receiving the diagnosis of learning disabled. Many court orders have caused this wave of change. For example, many minority children were very often classified as mentally retarded and now, those diagnoses have been determined to be acts of discrimination. Subsequently, many of these children now hold the diagnosis of learning disabled. Also, many parents pressure schools for the diagnosis of learning disabled rather than mentally handicapped because of the negative stigma that classification possesses. (Ibid)

The primary evidence of specific learning disability is the imperfect ability in school related areas. However, the definition does not offer a basis for differentiating a child with learning disabilities from a school underachiever. The criteria for determining who is eligible to be considered learning disabled is quite ambiguous. Although the federal definition suggests that the discrepancy between ability and achievement must be severe, there is no criteria regarding what is considered severe. Thus, state or local education agencies are free to interpret the framework offered by the federal government, which in turn creates serious variance between local communities and states, in regard to the definition of learning disabilities. (Ysseldyke, 2000)

In general, individuals with learning disabilities have average to above-average scores on intelligence tests and below-average scores on at least one achievement test. If there is a discrepancy between that individuals ability and achievement then a classification of learning disabled most likely will appear. (Ibid)

Over the past few years, there has been a movement to classify learning disabled students into sub-groups in order to clearly define and categorize the appropriate students. Researchers have tried to differentiate academic difficulties from developmental problems and some have even tried to distinguish academic problems from developmental behavior difficulties. Although this fractioning is done with good intention, its practicality is minimal. Unfortunately, assigning names to students with certain characteristics does not explain the underlying differences between the cognitive abilities of individuals. (Ibid)

The difficulty of defining the term learning disabilities lies in the vastness of who falls within its realm. Unlike a disability such as hearing impaired, where it is black and white in regard to who falls within its category, learning disabilities is not so simple. Learning Disabled individuals are diverse and their problems vary significantly from one another. Thus, ambiguities in defining the term will be a constant. The important aspect is to begin to understand all of these differences among learning disabled individuals. This then, leads us to The Theory of Multiple Intelligences.

Theory of Multiple Intelligences

In 1979, a group of Harvard researchers began a study of the Nature and Realization of Human Potential. A junior member of this team, Howard Gardner, took on the task of researching the nature of human cognition. Gardner's objective was to come up with a view of human thought that was broader and more comprehensive than that which was then accepted in cognitive studies. The primary notion of intelligence at that time and one which still remains, lies deeply in the work of Jean Piaget, who viewed all of human thought as striving toward the ideal of scientific thinking. In layman's terms, it is to provide answers with relative quickness to problems entailing linguistic and logical skills. (Gardner, 1993)

It is relatively accepted that humans possess a variety of talents, however, Gardner believed that by stating such would have been uncontroversial. Rather he chose to use the terms "Multiple Intelligences"; "Multiple" for the unknown amount of diverse human capacities, ranging from musical intelligence to the intelligence in understanding other people and "Intelligences" to underscore that these abilities were as fundamental as those accepted with the IQ test. (Ibid)

In order to fully understand this new perspective of intelligence, we need to delve into the history of the generally accepted notion of intelligence. In the early 1900's, a psychologist named Alfred Binet began to ponder the notion of predicting which young individuals would succeed in school and which would fail. According to most, Binet succeeded by developing the intelligence test. The intelligence test did away with the normal ways of determining someone's intelligence, such as intuitive assessment. Now intelligence seemed to be quantifiable, without being burdened by subjectivity. With the work of Binet, it became accepted that the science of psychology had a tool that could measure the actual or potential intelligence of humans. Thus, one instrument could measure the potential of cognitive abilities of all the people who take the exam. (Ibid)

This one-dimensional view of intelligence needs to be challenged according to Howard Gardner. In fact, he implies that not only should it be challenged, it should be replaced with a new concept. Howard Gardner's alternative vision is radically different from the historical uniform view of intellegence. It is a pluralistic view of mind, recognizing a variety of different and distinct facets of cognition, acknowledging that individuals have different cognitive strengths and contrasting styles. (Ibid)

This pluralistic view of intelligence conveyed by Howard Gardner explains the term "Multiple", meaning that individuals can display an array of cognitive abilities that are important to that individuals culture. How would you then define "Intelligence"?

Howard Gardner defines intelligence as the ability to solve problems, or to fashion products, that are valued in one or more cultural or community settings. This definition of intelligence diverges from the traditional view where intelligence is defined, operationally, as the ability to answer items on an intellignece test. The IQ test concentrates on underlying abilities that are supported by statistical techniques that compares individuals of all ages. The end score becomes the potential of that individual for the remainder of his or her life, and will remain unchanged even with age or further training; thus, making intelligence an inborn characteristic of each individual. (Ibid)

Now that we have a brief history of the term intelligence we are able to delve into The Theory of Multiple Intelligences. Howard Gardner originally sketched seven different intelligences that all humans possess. These intelligences do not work in isolation of one another; rather they form a type of orchestration. However, individuals normally possess a cluster of strengths, or two or three "intelligences", that are more developed than the others. Unlike the traditional view of intelligence, these seven intelligences can be strengthened through education and experiences. Also, the "weaker" intelligences of an individual can be built upon through training. (Ibid)

The Seven Original Intelligences

The seven intelligences consist of the following:

Linguistic
Logical
Musical
Spatial
Bodily-Kinesthetic
Interpersonal
Intrapersonal

Since Howard Gardner's original introduction of The Theory of Multiple Intelligences, he has adding several new intelligences. These new intelligences include; Existential, Naturalistic, and Spiritual Intelligences. For the sake of this report, we will concentrate on the original seven.

The following explanations, examples, and definitions are drawn from the various works of Howard Gardner.

The first two intelligences that will be discussed are the two that are deeply rooted in the traditional notion of intelligence; Linguistic and Logical Intelligence. Linguistic Intelligence is the ability to have command of language both written and spoken. Language is a universal gift that is shared across all cultures. Individuals who possess strengths in Linguistic Intelligence fair very well with pencil / paper exams and school in general. They like reading, playing word games, making up poetry and stories, getting involved in discussions, debating, formal speaking, creative writing, and telling jokes. They tend to be precise in expressing themselves, they love learning new words, and their comprehension of what they read is extremely high. One who does have strong linguistic abilities would be a natural at occupations such as; writers, poets, journalists, lawyers, politicians, comedians, talk show hosts, and newscasters to name a few. Examples of people who posses strong linguistic abilities include; Stephen King, Robert Frost, Ralph Nader, Alan Dershowitz, George Carlin, Johnny Carson, and Walter Conkrite.

Logical Intelligence, like Linguistic Intelligence, is also very consistent to the traditional view of intelligence and provides the principle basis for IQ tests. Logical Intelligence is the ability to think conceptually and abstractly. Individuals with strengths in Logical Intelligence are able to see patterns and relationships between objects. They generally enjoy solving puzzles, like to experiment, and find joy working with numbers and mathematical formulas and operations. They tend to be systematic and analytical, and they always have a logical rationale or argument for what they are doing or thinking. Individuals who possess strengths in Logical Intelligence are apt to become mathematicians, engineers, computer programmers, and scientists. Examples of people who have strong Logical Intelligence include Albert Einstein, Bill Gates, Carl Sagan, Isaac Newton, and Thomas Edison. Although the character is fictional, a tremendous contemporary example that students will be more apt to recognize is Will Hunting from the motion picture, Good Will Hunting.

Spatial Intelligence is the ability to think in pictures and images, to perceive the visual world and recreate or alter it in the mind or on paper. Individuals who possess strong Spatial Intelligence are generally very aware of objects, shapes, colors, and patterns in their world. They enjoy painting, drawing, doodling, working with clay, and even fabric. They usually enjoy jigsaw puzzles, reading maps, daydreaming, and going to new places. They understand what colors match with other colors, and they are able to recognize textures that may be pleasing to the eye when it comes to decorating a home or office. Spatial Intelligence is highly developed in people who have occupations such as architects, designers, artists, and sculptors. Examples of individuals that have highly developed Spatial Intelligence include Pablo Picasso, I.M. Pei, Calvin Klein, Michelangelo, Christopher Columbus, Wright Brothers, and Troy Aikman.

Bodily Kinesthetic Intelligence is the ability to use one's body in order to achieve a goal or to express oneself. Individuals who possess strong Bodily Kinesthetic Intelligence generally have a keen awareness of their bodies. They enjoy physical movement, dancing, role-playing, and using their hands in fixing or making things. Some may use their bodies to aid communications with others through physical gestures. They find it difficult to sit still for long periods of time, and are easily bored if they are not actively participating in the task at hand. Occupations that demand a strength in Bodily Kinesthetic Intelligence may include athletes of all kinds, actors, dancers, mimes, mechanics, choreographers, surgeons, and sign language interpreters. Examples of individuals who possess such a strength include Michael Jordan, Venus Williams, Gregory Hines, Marlee Matlin, Brittney Spears, Kristi Yamaguchi, Jim Carrey, and Charlie Chaplin.

Musical Intelligence is the ability to recognize sounds, pitches, and tones and create patterns to develop rhythm and music. Individuals who possess strong Musical Intelligence are quite sensitive to the sounds of their environment such as the chirp of a bird, rain on the roof, waves crashing into the shore, and the buzz of traffic on the highway. Sounds and tones may have a physical effect on them and may even alter their emotional mood. They love to create music, enjoy singing, and listen to a variety of singers, bands, etc. They are often quite skilled at mimicking sounds, imitating language accents, and recognizing different musical instruments in a composition. Occupations available for individuals who have strong Musical Intelligence lie greatly in the realm of music such as composers, disc jockeys, musicians, piano tuners, music producers and music critics. Examples of individuals who have strong Musical intelligence include John Lennon, Billy Joel, Ludwig van Beethoven, Carlos Santana, Jimi Hendrix, Kenny G, Allen Freed, and Quincy Jones.

Interpersonal Intelligence is the ability to understand other people. Individuals who have strengths in interpersonal intelligence possess very good interpersonal skills. For example, they can recognize facial expressions, tones in the voices of others, and possess good communication skills. They generally have many friends, show empathy and compassion for others, and understand different viewpoints from differing cultures and peoples. They enjoy group activities and are extremely good team members. They are sensitive to other people's feelings and emotions and our skilled in group discussions. They also have mediation skills and conflict resolution skills. Occupations that demand good Interpersonal Intelligence include teachers, politicians, activists, counselors, salespersons, and clinicians. Examples of individuals who possess strengths in Interpersonal Intelligence include Eleanor Roosevelt, Princess Diane, Audrey Hepburn, Ghandi, Martin Luther King, Jimmy Carter, Nelson Mandela, and Mikhial Gorbachev.

Intrapersonal Intelligence is the ability to understand oneself. Individuals with this intelligence understand their own moods and emotions, and, at times, make it available to others through works of art, such as writings or sculptures. These individuals are self reflective and self-aware and thus tend to be in tune with their inner feelings, values, beliefs, and personal thinking/learning styles. They are generally very intuitive and are self- motivated. They are often very strong willed, self-confident, and have well thought out opinions on almost any issue. Occupations that are held by people with strong Intrapersonal Intelligence may include poets, artists, musicians, therapists, psychologists, activists, philosophers, and motivational speakers. Examples of people who possess this intelligence include Henry David Thoreau, Emily Dickinson, Robert Fulghum, Jewel, Bob Dylan, Deepak Chopra, Woody Allen, and John Hughes.

The Theory of Multiple Intelligences isn't the first concept to suggest that there may be different ways to be intelligent. In fact, over the past two hundred years there have been many different hypothesis stating that there may be many different types of intelligence. However, Gardner's theory is the only one that is empirically backed by such scientific fields such as anthropology, cognitive psychology, psychometrics, biographical studies, animal physiology, and neuroanatomy. Each one of Gardner's "intelligences" has met criteria developed by him in order to maintain its scientific integrity. These criteria include symbols, developmental history, vulnerability, and cultural values. (Armstrong, 1993)

Each one of Gardner's intelligences is capable of being symbolized, which means that every intelligence can depict an idea or an experience through representations such as pictures, numbers, or words. Linguistic Intelligence can be symbolized with letters and words while Logical Intelligence can be symbolized by numbers or with Greek letters. These intelligences are easily acceptable and easily associated with their symbols because they are such an integral part of our educational system. Musical Intelligence can be symbolized by musical notes of the bass and treble clef to symbolize melodies and rhythms, while complex expressions and gestures such as those a mime would use, can symbolize Bodily Kinesthetic Intelligence. While watching a talented mime such as Marcel Marceau, one can clearly recognize the concepts of freedom or loneliness that the artist is trying to portray. Spatial Intelligence can be symbolized by the awesome structure of a suspension bridge or through the soft strokes of an impressionist painting on canvass. The personal intelligences are a bit more difficult to recognize, however, if you look closely it becomes apparent. Interpersonal Intelligence is symbolized through eye contact, arm gestures, nodding of a counselor's head in agreement with his or her patient, or as easily as the social gestures of waving goodbye. Intrapersonal Intelligence may be the most difficult to symbolize because of it's intimate nature. However, it can be illustrated through the images of meditation or for the public through song lyrics, paintings, and poems. (Ibid)

Every "intelligence" introduced by Howard Gardner has its own developmental history. Unlike the popular notion of intelligence, Gardner believes that each intelligence emerges at critical points throughout childhood, has periods of growth during one's life span, and contains its own unique pattern of either gradual or rapid decline as a person becomes older.

Each intelligence has it's own developmental pattern. For example, Linguistic Intelligence develops gradually through childhood. Between the years from zero to two, linguistic abilities can be seen through babbling and cooing. By the beginning of the second year, linguistic activity begins to change and one can recognize the utterance of single words such as Mommy, Daddy, doggy, truck. Before too long, the child begins to group two words into meaningful phrases such as: "bye-bye Mommy", "want cookie", "home now". As time develops so does the child's language. The complexity of the phrases become considerably noticeable and before too long, the child is speaking in coherent sentences. As the child goes to school, grammar and syntax become involved and by adolescence, the child is speaking and writing in paragraph forms. This development varies for each individual and may contain peaks and valleys in abilities. (Gardner, 1983)

The Theory of Multiple Intelligences is biologically based through the notion that each intelligence is vulnerable to impairment through insult or injury to specific areas of the brain. Multiple intelligence theory postulates that intelligences can actually be isolated within the brain and this can be seen in individuals with brain damage. For example, a person who has suffered damage to the left hemisphere of the frontal lobe may experience extreme difficulty speaking or writing (Linguistic). However, that same person may be able to dance, draw, and even sing without difficulty. Or, a person who at one time was extremely friendly and possessed adequate interpersonal skills, suddenly suffers damage to the frontal lobe, subsequently may become insensitive to others and have periods of meanness. Thus, it is argued that every intelligence has it's own place within the human brain. For example, Linguistic and Logical Intelligences are found in the left hemisphere, while intelligences such as musical and spatial are found in the right hemisphere. Bodily Kinesthetic intelligence is found in the motor cortex, the basal ganglia, and the cerebellum, and the personal intelligences can be located in the frontal lobes of the human brain. Although the human brain is incredibly complex and cannot be mapped out, empirical data supports the biological aspect of the Multiple Intelligence theory. (Armstrong, 1993)

The last criterion that each intelligence must uphold consists of being culturally valued. The Theory of Multiple Intelligences announces that intelligent behavior can be best viewed by looking at civilization's highest accomplishments and not by scoring responses to standardized test items. Generally speaking, IQ tests assess abilities that have little or no cultural value. For example, what culture places value on the ability to repeat numbers backward or forward or to solve analogy problems? On the other hand, concepts such as myths, legends, literature, music, art, and physical skills do get passed on from generation to generation. The Theory of Multiple Intelligences states that we can best learn what it means to be intelligent by studying examples of culture's most accomplished work in each of the seven areas. Also, different cultures place emphasis on certain skills over other skills. For example, the Manus people, studied by Margaret Mead, depend upon Bodily Kinesthetic intelligence as a means of survival. The Manus baby is put in a canoe at a very young age and must be able to hold on to the sides of the vessel or he or she will perish. Thus, this intelligence becomes highly developed or it would mean the demise of that individual. Comparing that with the American culture, Bodily Kinesthetic intelligence falls way behind intelligences such as Linguistic or Logical as means of importance. Thus, all cultures value different skills and abilities as being necessary or vital which makes one intelligent or less intelligent. (Gardner, 1983)

The Theory of Multiple Intelligences is an emerging, dynamic perspective on the concept of intelligence. Although it varies from the traditional, uniformed idea that have been accepted by psychologists and educators for years, it constitutes the most up to date synthesis of research on the topic of intelligence. The Theory of Multiple Intelligence is more than an idea; it is the future of education. (Armstrong, 1993)

Looking to the future

The future of education is the fusion of Learning Disabilities and Multiple Intelligence Theory. It just may be that everyone has a cluster of intelligence which includes two or three of the aforementioned intelligences. Conversely, everyone has weaknesses or disabilities in one, two, or even three of these intelligences. Historically, we have only concentrated on the disabilities that are so important to the realm of education, such as linguistic and logical abilities. A person with dyslexia will generally struggle with the traditional setting of the educational system and will be easily distinguishable. The same would be true for someone who has dyscalculia. Since our education system in the United States places so much emphasis on linguistic and logical abilities these individuals will be easily spotted and labeled as deficient. However, these same individuals may have extreme abilities in other areas such as Bodily Kinesthetic, or the Personal Intelligences. Subsequently, someone who has extreme abilities in logical or linguistic skills may be deficient in areas such as the Personal Intelligences. Thus, everyone possesses all seven of the intelligences proposed by Howard Gardner, however each individual has varying abilities. Since humans are all unique, it makes sense that cognitively speaking we would vary significantly. The Theory of Multiple Intelligences provides a model to make sense of all of this diversity. Once we recognize and embrace our diversity, we then can change the way we view intelligence. Further, when our notion of intelligence becomes more pluralistic, we will then teach and assess in a multi-modality fashion, which will enable us to reach all our students. (Ibid)

With the new millennium, our culture, that has been evolving, will continue to change. New perspectives will be introduced, technology will grow, and the way we view intelligence may need to be transformed. With this in mind, the next chapter will discuss intelligence, the history, the traditional view, and the future.

CHAPTER 2

Review of Literature

Intelligence

Every culture and society has different perspectives on who is intelligent, or what characteristics make up the ideal individual. History illustrates many examples of the diversity of this notion, and shows how the concept of intelligence has changed throughout the years. In ancient Greece, someone who displayed physical agility, rational judgement, and virtuous behavior was held in high regard. The mighty Romans looked upon individuals who possessed courage. Chinese populations under Confucius traditionally valued individuals who were skilled in music, poetry, archery, and drawing. Finally, the Pueblo Indians emphasized individuals who cared for others as an ideal person. (Gardner, 1999)

The environment in which one lives greatly determines how his/her society perceives intelligence. For example, the Manus tribe of New Guinea, who Margaret Mead wrote about in "Growing up in New Guinea", places emphasis on how one is able to control his/her body. Having well-developed fine and gross motor skills not only determine the most successful members of the tribe, but it is a matter of life and death. As discussed previously, at a very young age, Manus babies are placed in canoes with mothers. These young children must develop motor skills in order to hold onto the canoe in case of turbulence. They must balance themselves in strong currents, steer the canoes with accuracy, and paddle through high gales. Understanding the sea, also includes swimming, diving, and proceeding underwater. This prowess that is owned by this small minority of children, in this remote region of the world, is considered within average competence of the children. (Gardner, 1983)

Another example of the environment, which determines how we perceive intelligence, is the Gikwe bushmen of the Kalahari. These people can deduce from the spoor of an antelope, its size, sex, build, and mood. In the surrounding miles where they travel, they will know every stone and bush, every twist and turn of ground, and usually have a name for every place where life can grow. This keen sense of visual memory or spatial ability is looked upon as someone who is intelligent or highly revered. (Ibid)

Conversely, in Western societies, especially over the past few centuries, the ideal individual has shifted to one who has ability in the linguistic and logical realms. Although logical and rational thinking dates back to the days of Socrates, it was the birth of the IQ test that mobilized the traditional perspective of intelligence. (Gardner, 1993)

Alfred Binet, the father of IQ tests, was motivated to create some kind of instrument that would measure or predict which children would be successful in school. His goal was realized, and without fully realizing it, the intelligence test was born. Intelligence, which was once assessed intuitively, was now quantifiable. Thus, it created a one-dimensional view of cognitive ability. (Ibid)

From Binet's time on, intelligence tests have been heavily weighted toward assessing verbal memory, verbal reasoning, numerical reasoning, appreciation of logical sequences, and ability to solve daily problems. (Gardner, 1999)

Although the "IQ" test originated in Paris, it slowly made its way to America and ultimately became "Americanized" during the 1920's and 1930's. During that time American psychometricians, Lewis Terman and Robert Yerkes prepared a paper-pencil version that was easily administered to a group of individuals. Thus, they created a tool that measured the "intelligence" or "potential" of United States Army recruits and immigrants from northern, central, and southern Europe. By the mid-1920's, the intelligence test had become a fixture in educational practice in the United States. (Ibid)

Lewis Terman, a professor of education and psychology at Stanford University from 1910 to 1946, had a tremendous impact on the direction of education and intelligence in the United States during that time. The tests that he developed, which have been argued to be prejudiced against immigrants and ethnic minority students became widely used to determine a person's "intellectual ability". Terman was immediately invited by the United States army to sort out or categorize the enlisted recruits during World War I. Over an eighteen-month period, he, along with his graduate students, tested and classified over 1.7 million inductees. In addition to his work for the military, Terman created the Stanford Achievement Test in order to study gifted children. From this study, came the emergence of the famous term "intelligence quotient", or "I.Q.". In 1919, the General Education Board of the Rockefeller Foundation awarded Terman a grant in order to develop a national intelligence test. Within a year's time 400,000 tests were available for use in the public school system. This created a competitive culture that believed in a one-dimensional view of intelligence and that "intelligence" can be measured. (Leeman, 2000)

In the early 1900's, as mental tests were emerging, a former British Army officer named Charles Spearman made a conceptual and statistical breakthrough that has shaped the development and has spurred the controversy of mental tests ever since. Spearman studied the results of the various data that was accumulating from all the different mental tests. It became apparent to Spearman that any individual who did well on a mental test would do just as well on a different mental exam. The same would hold true for an individual who had done poorly. A closer examination of the results illustrated even a more positive correlation. Spearman noticed exams that asked similar questions, and received similar outcomes when answered by the same individual. A person, who got an answer right on one test, tended to get the similar question correct on another. The same held true for those individuals who got the answer incorrect. The empirical data made it almost impossible to develop questions that tested a cognitive skill that was not positively correlated with other questions that measured some cognitive skill. This statistical analysis used by Spearman, which is now known as factor analysis, uncovered evidence for a unitary mental factor. Spearman named this factor g, for "general intelligence".

Although intelligence tests had a multitude of uses and were easily assessed, they were not without their critics. The biggest opponent of the intelligence tests at that time was American journalist Walter Lippman. Lippman criticized Terman's test because of the test item's lack of depth and possible cultural biases. He, also, had difficulty with assessing an individual's potential through a single paper-and-pencil method. Lippman wrote, "*I hate the imprudence of a claim that in fifty minutes you can judge and classify a human being's predestined fitness in life. I hate the pretentiousness of that claim. I hate the abuse of scientific method, which it involves. Hate the sense of superiority which it creates, and the sense of inferiority which it imposes.*" (Hernstein, Murray, 1994)

IQ tests were also the subject of many jokes and cartoons during this time. However, psychometricians stuck to their numbers, tables, and data, defending their instruments. Over the years, they had much success from the halls of academia to the testing cubicles in schools, hospitals, and employment agencies. Intelligence testing became a tool of technology that was useful in selecting people to fill academic or vocational niches. (Gardner, 1999)

Another psychologist who had alternative perceptions regarding intelligence was L.L. Thurstone. Thurstone, a psychometrician from the University of Chicago, raised the main question toward the concept of intelligence. Is intelligence a singular aptitude or does it have multiple facets or aptitudes? Thrustone, unlike his peers of the Purist movement, believed that intelligence is made up of several primary mental abilities rather than a general intelligence factor. He was among the first to propose and demonstrate that there are many ways in which an individual may be intelligent. Thurstone's multiple aptitude or as he dubbed them, "vectors of the mind", included:

- Verbal Comprehension
- Word Fluency
- Number Facility
- Spatial Visualization
- Associative Memory
- Perceptual Speed
- Reasoning

Thurstone's vectors of the mind theory has been used to build intelligence tests that measure the performance of individual's ability within each of the aforementioned aptitudes. This variance of abilities, in the realm of intelligence, was in direct conflict with the traditional sense of intelligence, which involved one general intelligence that yielded a singular score. (Plucker, 1998)

J.P. Guilford, a professor from the University of Southern California, took Thurstone's vectors of the mind, and added more cognitive operations. He came up with his own "factors of the intellect", which contained one hundred and fifty components. The line of thinking further illustrates the conflict among psychologists, who argue whether intelligence is a singular or pluralistic capacity. (Gardner, 1999)

More recently, there have been more challenges to the concept of traditional intelligence. Many have developed their own idea of what intelligence is and, if and how it should be measured. With the turn of the new millennium, it appears to be inevitable that the ideas of intelligence will be viewed in many different ways. (Ibid)

A perfect example of a contemporary psychologist who has put his own twist on the traditional concept of intelligence is Robert Sternberg. Sternberg, a psychologist from Yale, began his work trying to understand the mental processes generated by standardized testing. In doing so, he stumbled upon his own theory of intelligence: The Triarchic Theory of Intelligence. (Gardner, 1999)

The triarchic theory postulates three components that make up intelligence. The three components consist of Analytical Intelligence, Creative Intelligence, and Practical Intelligence. Analytical intelligence is very similar to the traditional definition of intelligence. This form of intelligence can be assessed through analogies and puzzles. Creative Intelligence has to do with an individual's insight, synthesis, and ability to react to stimuli and situations. This according to Sternberg, is the experiential component of intelligence. It reflects how an individual connects the internal world to external reality. Practical intelligence, which can be defined as "street smarts", deals with one's ability to grasp, understand, and solve everyday problems or situations. This intelligence reflects how an individual relates to the external world. (Miele, 1995)

When Sternberg compares his Triarchic Theory to Gardner's Multiple Intelligence theory, he agrees that to a large extent they are compatible. Gardner deals with content, or, as he refers to them, symbolic domains of intelligence (linguistic, logical, spatial, etc.) whereas, Sternberg deals with domains of application of process (analytical, creative, and practical). Sternberg believes one could think in terms of Gardner's intelligences as being applied to each one of his domains. For example, in the realm of linguistic intelligence, the work of a food critic could be considered analytical. The work of a poet would demonstrate creativity, and the work of an advertising copywriter as practical. Although Sternberg shared the same goal of broadening the concept of intelligence, he disagrees as to whether some of Gardner's "intelligences" should be considered clusters of abilities rather than intelligence unto themselves. (Sternberg, 1997)

There has also been a movement toward the "moral" realm in the future definition of intelligence. Daniel Goleman (1995), a psychologist and journalist has developed the concept of Emotional Intelligence. Goleman contends that the way an individual deals with situations or emotional reactions, and reading others is more important than IQ. In the fury of the debate of intelligence, Goleman raises questions such as, why do we ever see individuals with obvious intelligence behave irrationally? He then gives the example of a high school honor student, who allegedly threatened his teacher for giving him a B on an assessment rather than an A. It is Goleman's contention that Academic Intelligence has little to do with emotional life. Some of the brightest people of our society have difficulty with emotions. For example, people with high IQ's, may lead poor personal lives. Although he accepts the fact that there is a relationship between IQ and life circumstances for large groups as a whole, he believes there is more involved in the equation. For example, many people with low IQ's end up in menial jobs and those with high IQ's end up in positions of power and wealth. However, Goleman contends that there are widespread exceptions to this rule. In fact, he believes IQ scores contribute about twenty percent to the factors that determine success in life, which leaves eighty percent to other forces. These other forces can fall in the mix of the nature and nurture debate. However, for the most part these other characteristics that determine success can be attributed to someone's emotional intelligence according to Goleman. These characteristics include:

- Self motivation
- Persistence
- Impulse control
- Ability to delay gratification
- Ability to regulate one's moods
- Ability to think even in moments of distress
- Ability to empathize and hope

Although empirical data is lacking when compared to the results of IQ scores, Goleman contends that the data they do have suggests that emotions can be as powerful, and at times more potent, than IQ.

As we take a peek into the new millennium, we can see perspectives of intelligence being challenged and perceptions of who is intelligent, to be redefined. Our culture is very different from what it was in the early 1900's when intelligence was considered a singular capacity that could be assessed with one instrument. Instead, the future holds a more pluralistic view of intelligence, which leads us to the front-runner in the realm of a pluralistic view of intelligence, Howard Gardner, and his theory of multiple intelligence.

Howard Gardner who originally wrote Frames of Mind in 1983 to challenge the traditional view of intelligence has made a greater impact on the field of education than his own field of psychology. In any case, his theory is wildly popular among many because of its appeal. Gardner believes the question is not how smart people are, but in what ways people are smart. He has questioned and gone to battle with the test-driven meritocracy by offering an explanation for academic failure due to how we are measured, rather than the student, teacher, and schools. This appeal makes his theory very powerful, however it does not make it valid. (Traub, 1998)

Within the field of psychology, where the view of intelligence has not changed very much since the days of Binet, there have been many arguments regarding intelligence in reference to it being inherited or having more to do with one's environment and upbringing. Conversely, there has been a very broad consensus around the idea of intelligence being a singular entity that can be measured with fairly great accuracy. Although psychologists believe in different aptitudes, they all fall within the single underlying trait called g, for "general intelligence". (Ibid)

Rather than accepting that intelligence tests captured intelligence, Gardner drew up a series of criteria from a wide range of disciplines and assigned the title "intelligence" to whatever mental traits satisfied them. If he did not use the word intelligence, he believed his work would be overlooked and quickly discarded. The aptitudes that made the final cut included linguistic, logical, spatial, musical, bodily kinesthetic, interpersonal, and intrapersonal. (Ibid)

Although Gardner's theory is quite popular, he failed to persuade his peers. Many argued that it boiled down to hunch and opinion and believed it contained rhetoric rather than science. Stephen Ceci, a developmental psychologist from Cornell, praises Gardner for being a wonderful communicator, however he provides no real evidence or test results so that he and his colleagues could evaluate. (Ibid)

Since there is no true way to empirically prove Howard Gardner's theory of Multiple Intelligence, most of his peers have dismissed his ideas as a warm, fuzzy scheme, directed toward self-esteem rather than the unitary, traditional view of intelligence. Developmental psychologist, Jeffrey Arnett believes that American people are drawn to his theory because it appeals to their sentimentality. Who doesn't want to believe everyone is intelligent? Jerome Hagan, a Harvard psychologist who supports Gardner's fundamental message, cautions society to focus on skills that determine success. He believes in our culture, the best occupations go to the individuals with strong verbal and math skills. Thus, it is crucial to learn them to secure a bright future. (Allis, 1999)

In defense of his theory, Howard Gardner, believes he has committed two cardinal sins in the realm of intelligence and psychology. The first fault was that he defined his intelligences on data from biological, cultural, and psychological sciences rather than on the basis of test correlations. Although this approach is perfectly valid, it simply runs counter to what American psychometricians have done. (Gardner, 1998)

The second fault, Gardner believes, is his hesitancy to create tests that measure different intelligences. Although he is interested to find correlations among his intelligences, he is very hesitant to endorse instruments that may be inadequate. According to Gardner, assessment of multiple intelligences should consist of two criteria. One, it needs to be direct and as natural as possible. The assessment should not occur through paper and pencil instruments. Second, assessment should be surveyed in some detail. Whether one is working with spatial, musical, or interpersonal abilities, each of these has many facets, and educators or testers should not be satisfied with a one-shot assessment of a single facet. (Gardner, 1998)

As mentioned previously, critics of multiple intelligence believe that his theory is appealing, however there's no proof or empirical data to back it up. In an interview from NEA (National Education Association) Today online (2000), Gardner answers his critics.

The following is excerpts from and interview Stefanie Wies from NEA Today had with Howard Gardner.

Can you give a shorthand version of your theory of multiple intelligences?

Multiple intelligences is a psychological theory about the mind. It's a critique of the notion that there's a single intelligence which we're born with, which can't be changed, and which psychologists can measure. It's based on a lot of scientific research in fields ranging from psychology to anthropology to biology. It's not based upon based on test correlations, which most other intelligence theories are based on.

The claim is that there are at least eight different human intelligences. Most intelligence tests look at language or logic or both – those are just two of the intelligences. The other six are musical, spatial, bodily/kinestheic, interpersonal, intrapersonal, and naturalist.

I make two claims. The first claim is that all human beings have all of these intelligences. It's part of our species definition. The second claim is that, both because of our genetics and our environment, no two people have exactly the same profile of intelligences, not even identical twins, because their experiences are different.

This is where we shift from science to education. If we all have different kinds of minds, we have a choice. We can either ignore those differences and teach everybody the same stuff in the same way and assess everybody in the same way. Or we can say, look, people learn in different kinds of ways, and they have different intellectual strengths and weaknesses. Let's take that into account in how we teach and how we assess.

So how should teachers who believe in your theory change their approach to teaching?
Multiple intelligences (MI) is a tool. It's not a goal. That means that you have to decide what you want to teach, and that should be based on what you think is important. Nowadays often it's other people who are telling us what to teach. That's not what I favor. But whoever makes the decisions, once those decisions are made, that's when MI can come into action.

In my own work, I'm a proponent of teaching for understanding, which means going deeply into topics so that students can really make use of knowledge in new situations. This is very, very different from most teaching, where people memorize material and can reproduce it on demand but can't make use of it in new situations. That's what understanding entails. If you favor education for understanding the way I do, then MI can be extremely helpful. Because when you are teaching a topic, you can approach the topic in many ways, thereby activating different intelligences. You can provide analogies and metaphors for different domains, invading different intelligences, and finally, you can present the key ideas in a number of different languages or symbol systems, again activating different intelligences.

But obviously you can't do that if you're going to spend five minutes on a topic and then move on to something. Then you're almost constrained to present it one way, which is usually verbally, and to give people a short-answer test. You can see that I'm very much in opposition to the current state and national trends, which create more tests, often of a short-answer sort, favoring coverage or noncoverage and not probing deeply into what people really understand.

Can standardized tests ever hope to measure children's full intelligence?
I'm not in favor of tests that are designed to measure people's intelligence, because frankly I don't care what intelligence or intelligences people have. I care whether they can do things which we value in our culture. What good is it to know if you have an IQ of 90 or 110 – or even if you can jack it up to 120 through a lot of training – if, in the end, you can't do anything.

I think our assessments ought to focus on the kinds of things we want people to understand, and they ought to give people a chance to perform their understandings. Because, at the end of the day, it doesn't matter if you have an IQ of 160 if you sit around and do nothing. What's important is whatever IQ you have or whatever profile of intelligences you have, that you can demonstrate knowledge and understanding of things that matter.

So do you think the high-stakes testing movement that we're seeing now is going to force people to abandon different approaches to teaching?
Yes. Current approaches almost inevitably push people to teach to the test, because those tests are so high-stake both for students and for teachers. Now, in principle, one could have assessments which probe understanding, and they could even be standardized. I would be much more in favor of those assessments. But those assessments would have to give people lots of choices. Because, say you're doing American history, you have to say to people, "I want you to discuss, let's say, the role of immigration in America, but you can discuss it with reference to any one of 20 different groups or 20 different issues." If, on the other hand, you require people to know all 20 different groups and all 20 issues, then obviously, they can't know very much about any one of them. It's just a very superficial, *Jeopardy*-style knowledge.

Now let's be clear about this: Assessment is fine. Even standardized assessment is fine, if it looks at things which are important and allows us to probe in-depth what people understand. But if it's just whether you memorized the encyclopedia and can spit it out, it's of no value, because a year later, even six months later, you'll have forgotten everything because you will not have had any kind of understanding.

How do you respond to those who say that MI theory is appealing, but there's no proof to back it up?

There's no short answer to that question. To begin with, it's a scientific theory, and so it needs to be evaluated on the basis of the science on which it draws. And I think it does quite well in terms of the scientific evidence, even the evidence that's accumulated since the theory was first propounded 20 years ago. I have a new book coming out this fall called *Multiple Intelligences Reframed*, where in fact I discuss a few new intelligences, and also discuss the scientific evidence for it. So when people say it hasn't been proved, we first have to say what's the scientific evidence for and against it--and I think the scientific evidence stacks pretty well.

Now, I've never espoused a particular program in schools. There are no Gardner schools, and there is no MI approach. So when people say it hasn't been proved, it's a senseless statement. What you have to say is, "Has this particular implementation of MI theory, in this particular place, produced better student learning?"

Mindy Kornhaber at Project Zero has been investigating 42 different schools which have been using MI theory for at least three years, and those schools report a lot of success with students, on both hard measures--how they do on tests--and on softer measures, like absenteeism and parental involvement.

When I was interviewed by *Time* magazine and asked about the effects of MI in schools, I was very cautious, because even if those schools are doing wonderfully, we don't know for sure whether it's because of MI. There are a hundred different things that could be going on in those schools.

I was criticized for being honest. The implication was that if I lied and said these schools are better and we know it's because of MI theory, then therefore the theory would have been proved correct.

So this question is much more detailed and technical than the question itself implies. But if you want a flip answer, the flip answer is, if we know the other approaches haven't worked because we wouldn't be in the situation we're in if they had, then you'd be a fool not to try something new.

But as I hope I've made clear to you, there isn't a single MI approach. Basically, the idea is if you value the differences among students and take them very seriously, that should have implications for how you present material. That's the only absolute implication from the theory. But whether you teach seven courses or eight courses or you teach something seven ways or eight ways, or you teach to strength or you teach to weakness, those are all decisions made by educators. They don't follow from the theory.

What do you say to people who say that linguistic and logical-mathematical intelligences are more important than the other six?

There's no question that if you have a certain combination of language and logic, you're going to be facile in handling the kinds of tests we usually give, and as long as you stay in school, you'll think you're smart. If you ever should walk out into the street, you might be in for a huge shock. Conversely, if you're not good in language and logic in school, you'll have a harder time because you'll think you're dumb, and you kind of have to get through school to show what it is that you can accomplish in life.

However, there's a very important distinction between the intelligence and the domain. An intelligence is a way of processing, which your mind/brain has. A domain is a subject or topic that you want to master. Any domain can be mastered through a lot of different intelligences. You don't have to use language and logic.

So if you're trying to understand history or science or arts, you can use intelligences like spatial intelligence or musical intelligence or personal intelligence or the naturalist intelligence. A large part of education, whether it's self-education or scholastic education, is figuring how to get your particular mind/brain to learn what it is that it needs to learn.

So if you're not very good in language and logic, you've got three choices: one is to punt, the other is to improve those--and if you can improve them, great--and the third is to say, well I can learn about things in other ways. Let's see whether I can use those other ways to do a better job. I'm very bad with maps, spatial kinds of things, geometry. I try to exercise my spatial muscles, and they've probably gotten somewhat better. But there are lots of other ways to find your way around besides maps, and it's often very good to use the intelligences that are there.

Indeed I often say that if anybody doesn't believe in multiple intelligences, they should go on an automobile ride with three other people and get totally lost and see how each person tries to get back home. That will make them an instant convert to the theory of multiple intelligences. People do not think the same way.

Learning Disabilities

Learning Disabilities are often defined in terms of discrepancies between IQ and a learning ability. For example, a child who scores much lower on tests of reading ability compared to a standardized test of intelligence, may be seen as demonstrating a reading disability. At first glance, this makes complete sense, however when one takes a closer look there is plenty wrong with this notion. (Sternberg and Grigorenko, 1999)

Sternberg and Grigorenko (1999) highly question the assumption that IQ scores measure all there is to know about intelligence. Many modern theorists have disputed this assumption and Howard Gardner is one of them. If one accepts Gardner's perspective of Multiple Intelligences, then a conventional intelligence test can only illustrate a small part of the whole story of intellectual abilities. Scrutinizing the difference between reading ability and IQ would be an unnecessary task. At best, IQ tests measure linguistic and logical abilities. Perhaps, a fraction of spatial ability could be assessed as well. IQ tests do not measure the other intelligences proposed by Gardner. Moreover, reading ability would be a component of linguistic intelligence. A reading disability would then manifest itself as a weak level of linguistic intelligence. Thus, subtracting a reading score from an overall intelligence score, would be hypothetically subtracting something from itself. (Ibid)

Sternberg and Grigorenko (1999) go on with a hypothetical example, illustrating their point. Consider Jocelyn, who is a brilliant musician and a tremendous dancer. She is very personable and gets along with others. She understands herself and knows how to play to her strengths in relation to others. Jocelyn's academic record is only average, because her linguistic and logical abilities are lacking. Since she has been very successful at dancing and has attracted attention from talent agents, she is not overly concerned. Her future appears to be bright even with undistinguished linguistic and logical abilities. (Ibid)

In relation to Gardner's theory, Jocelyn's cluster of strengths exists within musical, bodily kinesthetic, interpersonal, and intrapersonal. Even with these abilities, her IQ is roughly average, because the limited set of abilities measured by IQ tests do not do justice to her strengths. (Ibid)

The predominate view of intelligence, in Western society, is viewed as a relatively unified construct. In other words, general intelligence is seen as a single continuum of ability that can be assessed by a measurement of the intelligence quotient (IQ), which creates the concept of IQ score as the sole determinant of adaptive ability. This view has made an impact in the field of learning disabilities, as well as educational psychology and special education. For example, one of the means of assessing and identifying learning disabled students is through the determination of a student's "general intelligence". (Bender, 1998)

However, since the early 1900's, theorists have argued that intelligence is really multi-faceted. Many have argued people have various abilities in a number of areas, and the abilities have relatively little to do with each other. This raises the possibility that a single individual may have vastly differing abilities in a variety of areas, suggesting that a student with learning disabilities may function normally in one area, while demonstrating severe deficits in another. (Ibid)

Many theorists have argued that standardized IQ tests have very little to do with one's ability to create. Further, intelligence is not a single unitary construct, but many types of abilities should be assessed to get an accurate picture of an individual's overall capabilities in dealing with his or her environment. Howard Gardner is leading the charge with his Theory of Multiple Intelligence. (Ibid)

In applying this growing theoretical perspective to the field of learning disabilities, Hearne and Stone (1995) discovered evidence suggesting that the multiple intelligence perspective may be a more appropriate view of learning disabilities than the more static view based on the unitary notion of general intelligence. For example, school assessment for the most part is deeply rooted in linguistic and/or logical understanding. Thus, if an individual is gifted musically, but cannot read the tests given in that subject, the student can still fail music. Or, a student who has tremendous spatial and bodily kinesthetic skills can draw and make reference to the entire solar system, giving detail accounts of all the planets, demonstrating competencies. However, if you assess with only paper and pencil tests and he/she has a language learning disability, he or she will be penalized.

What Gardner and others propose is that all demonstrations of the various multiple intelligences should be valued and used as the basis for instruction and for assessment of students in schools. Educators should seek to identify the child's strengths in all different forms of intelligence and plan a school program building on these strengths. If and when this perspective takes hold, education will be revolutionized. (Bender, 1998)

CHAPTER 3

Methodology

The research findings from this project will demonstrate the need to teach and assess learning disabled students in a variety of ways.

I have conducted a qualitative data research analysis. According to Lincoln and Guba (1985) the objective of a qualitative study is to accumulate sufficient knowledge in order to lead to understanding. It is also their suggestion to utilize emergent research design, which means data collection and analysis are simultaneous. Furthermore, it is the opinion of Miles and Huberman (1984), that "words" have a concrete, vivid, meaningful flavor that often proves far more convincing to the reader.

Unlike a quantitative research, a qualitative research tends to avoid or downplay statistics. If one yearns to explore people's lives, histories, or everyday behaviors, according to Silverman (2000), a qualitative research method is the appropriate tool. Therefore, since I wanted to explore the daily lives of college students with learning disabilities, I chose a qualitative research method.

The researcher began his study while working for a comprehensive support program for students with learning disabilities at a small private college. The program, which is heavily influenced by Howard Gardner's Theory of Multiple Intelligence, provides a multitude of accommodations and support. An integral component of this program is assisting college freshman through a comprehensive summer program that provides them with an introduction to college life, academically and socially. During this seven-week period, students enroll in EDU 100, Language and Learning Development. This course, diagnostic in nature, is designed to help students understand the Theory of Multiple

Intelligence, and the relationship of intelligence to learning. It is here where the research began.

The subjects that were studied in this qualitative research were all beginning their first college experience. Every subject studied had recently graduated from high school with regular diplomas. Although each student had a unique disability such as but not limited to dyslexia, dysgraphia, dyscalculia, and visual perception disorders, they all shared the diagnosis of learning disabled. Thus, they all had average intelligence, however each one of them had a neurological disorder that hindered their ability to either listen, think, speak, read, write, spell, or do mathematical calculations.

Method of Collecting Data

While working as a teacher's assistant during the aforementioned summer program I used the following data collecting strategies.

The primary source of data collecting was through a Multiple Intelligence, Self-Inventory worksheet (Appendix I). Students enrolled in EDU 100 Language and Learning development are often required to reflect and seriously ponder their own learning preferences and styles. The purpose is to understand themselves, as learners, in order to advocate for themselves, and ultimately be successful in college. For this research, a multiple intelligence self inventory was used in order to get a snapshot of the diversity of the students in this particular class. The inventory was also used to illustrate the clusters of intelligences that exist among a classroom of college students with learning disabilities. The Multiple Intelligence Self-Inventory used was created by Cal Crow Ph.D. from Hightine Community College.

The Multiple Intelligence Self- Inventory is designed to capture an individual's strengths in regard to The Theory of Multiple Intelligence. The inventory is divided into seven separate categories: Linguistic, Logical, Spatial, Bodily Kinesthetic, Musical, Interpersonal, and Intrapersonal. Each section has ten statements that illustrate an ability or enjoyment that would indicate strength in that particular "Intelligence". If the statement holds true to the individual who is taking the inventory, he or she should put a check in the appropriate place. For example, within the section of Linguistic Intelligence, it states, "I enjoy reading books and magazines". If this statement were true, the student would place a check next to the statement. If it were false, they would leave it blank and proceed to the next statement. Once the student completes a section, they are to add up the total amount of checks and place that total figure in the appropriate location. A section that has a total of seven or higher is considered an area of particular strength.

Students were asked to reflect and answer statements as accurately as possible. When inventories were completed, the researcher analyzed the results to determine any relationship between clusters of intelligence and the students. Most importantly, the researcher scrutinized the data to determine if the cluster of "intelligences" falls within traditional intelligence or in more non-traditional intelligences. Traditional being logical and linguistic while non-traditional draws upon the rest of Gardner's intelligences.

The secondary source of collecting data was through observation. According to Lerner (2000), observation often corroborates findings of other assessment measures.

Observations of the classroom provide authentic information about each individual student. Although observation was ongoing, for the purpose of this research, it was restricted to a classroom activity called "pie of life" (Appendix II). Students are required to draw a large circle on a piece of paper. They are to divide the circle into parts or "pies". Each section is to represent activities or responsibilities that make up an average day in their lives. By observing students as they work on the project and by scrutinizing their final product, this researcher was able to ascertain the specific strengths and weaknesses of each student.

The research took place at a freshman college summer program. The program is designed for a limited number of learning disabled students who have the motivation and intellectual capacity for college level work, yet whose skill and performance levels indicate that without support they would be at risk. The objective of the summer program is to enrich student's abilities while working on strengthening their weaknesses. The summer program enrolled twenty- six students who were divided into two classes. Class A had 15 students (8 males and 7 females) and Class B had 11 students (6 males and 5 females). For the purpose of this research, all twenty-six students were observed.

CHAPTER 4

Data Analysis

The purpose of this study was, first, to ascertain a relationship between learning disabled students and their cluster of intelligences. Second, to investigate whether the learning disabled student will have a cluster of intelligences in the realm of traditional intelligences; logical and linguistic, or, the research can illustrate variances and uniqueness of intelligences to every individual. In order to accomplish these objectives, the researcher conducted a qualitative data analysis. The rationale of a qualitative research method, as Lincoln and Guba (1985) suggests, is to gather sufficient knowledge to lead to understanding the issues under investigation. The following are the results of reflective inventories and observations.

The setting of this particular study took place in a pre-freshman, summer program of a small private University. The summer program is one of many special services this particular University provides for its students who participate in their comprehensive support program for students with learning disabilities. Due to confidentiality, the school and names of students will not be identified.

Results of Multiple Intelligence Self Inventory

After administering the Multiple Intelligence self inventory, the following results were obtained: (Results are depicted student by student within Class A and Class B. Scores in bold print illustrate perceived strengths of each individual.)

Class A

Student 1

Linguistic	**8**
Logical	5
Spatial	5
Bodily-Kinesthetic	5
Musical	6
Interpersonal	5
Intrapersonal	**7**

Student 2

Linguistic	5
Logical	5
Spatial	**6**
Bodily-Kinesthetic	3
Musical	5
Interpersonal	**7**
Intrapersonal	3

Student 3

Linguistic	9
Logical	8
Spatial	9
Bodily-Kinesthetic	9
Musical	**10**
Interpersonal	**10**
Intrapersonal	**10**

Student 4

Linguistic	8
Logical	5
Spatial	7
Bodily-Kinesthetic	**10**
Musical	**10**
Interpersonal	**10**
Intrapersonal	6

Student 5

Linguistic	6
Logical	7
Spatial	**8**
Bodily-Kinesthetic	**9**
Musical	6
Interpersonal	**9**
Intrapersonal	7

Student 6

Linguistic	5
Logical	3
Spatial	**8**
Bodily-Kinesthetic	7
Musical	6
Interpersonal	7
Intrapersonal	**8**

Student 7

Linguistic	3
Logical	3
Spatial	**7**
Bodily-Kinesthetic	**7**
Musical	2
Interpersonal	**7**
Intrapersonal	4

Student 8

Linguistic	5
Logical	6
Spatial	7
Bodily-Kinesthetic	5
Musical	6
Interpersonal	**9**
Intrapersonal	**9**

Student 9

Linguistic	2
Logical	2
Spatial	**10**
Bodily-Kinesthetic	**10**
Musical	3
Interpersonal	**10**
Intrapersonal	6

Student 10

Linguistic	**8**
Logical	7
Spatial	7
Bodily-Kinesthetic	**8**
Musical	7
Interpersonal	**8**
Intrapersonal	6

Student 11

Linguistic	**5**
Logical	1
Spatial	3
Bodily-Kinesthetic	1
Musical	0
Interpersonal	**5**
Intrapersonal	3

Student 12

Linguistic	4
Logical	2
Spatial	3
Bodily-Kinesthetic	4
Musical	3
Interpersonal	**7**
Intrapersonal	**6**

Student 13

Linguistic	6
Logical	4
Spatial	**8**
Bodily-Kinesthetic	**10**
Musical	**8**
Interpersonal	6
Intrapersonal	7

Student 14

Linguistic	4
Logical	5
Spatial	3
Bodily-Kinesthetic	5
Musical	3
Interpersonal	5
Intrapersonal	**7**

Student 15

Linguistic	6
Logical	4
Spatial	4
Bodily-Kinesthetic	**8**
Musical	4
Interpersonal	**9**
Intrapersonal	6

Totals for Class A

	Total	Average
Linguistic	84	5.6
Logical	63	4.2
Spatial	95	6.3
Bodily-Kinesthetic	**103**	**6.8**
Musical	79	5.2
Interpersonal	**114**	**7.6**
Intrapersonal	**98**	**6.5**

Class B

Student 16

Linguistic	**8**
Logical	7
Spatial	**8**
Bodily-Kinesthetic	6
Musical	5
Interpersonal	5
Intrapersonal	7

Student 17

Linguistic	7
Logical	**10**
Spatial	8
Bodily-Kinesthetic	**10**
Musical	8
Interpersonal	**10**
Intrapersonal	**10**

Student 18

Linguistic	5
Logical	5
Spatial	**10**
Bodily-Kinesthetic	**10**
Musical	**10**
Interpersonal	9
Intrapersonal	**10**

Student 19

Linguistic	9
Logical	2
Spatial	4
Bodily-Kinesthetic	3
Musical	3
Interpersonal	**8**
Intrapersonal	**8**

Student 20

Linguistic	3
Logical	3
Spatial	**6**
Bodily-Kinesthetic	3
Musical	4
Interpersonal	3
Intrapersonal	4

Student 21

Linguistic	4
Logical	3
Spatial	1
Bodily-Kinesthetic	1
Musical	**6**
Interpersonal	**7**
Intrapersonal	**6**

Student 22

Linguistic	6
Logical	**10**
Spatial	8
Bodily-Kinesthetic	**9**
Musical	7
Interpersonal	**9**
Intrapersonal	7

Student 23

Linguistic	4
Logical	6
Spatial	5
Bodily-Kinesthetic	**7**
Musical	4
Interpersonal	**10**
Intrapersonal	**7**

Student 24

Linguistic	4
Logical	6
Spatial	6
Bodily-Kinesthetic	**8**
Musical	3
Interpersonal	6
Intrapersonal	4

Student 25

Linguistic	5
Logical	4
Spatial	4
Bodily-Kinesthetic	3
Musical	6
Interpersonal	**9**
Intrapersonal	**7**

Student 26

Linguistic	4
Logical	3
Spatial	**7**
Bodily-Kinesthetic	2
Musical	5
Interpersonal	5
Intrapersonal	3

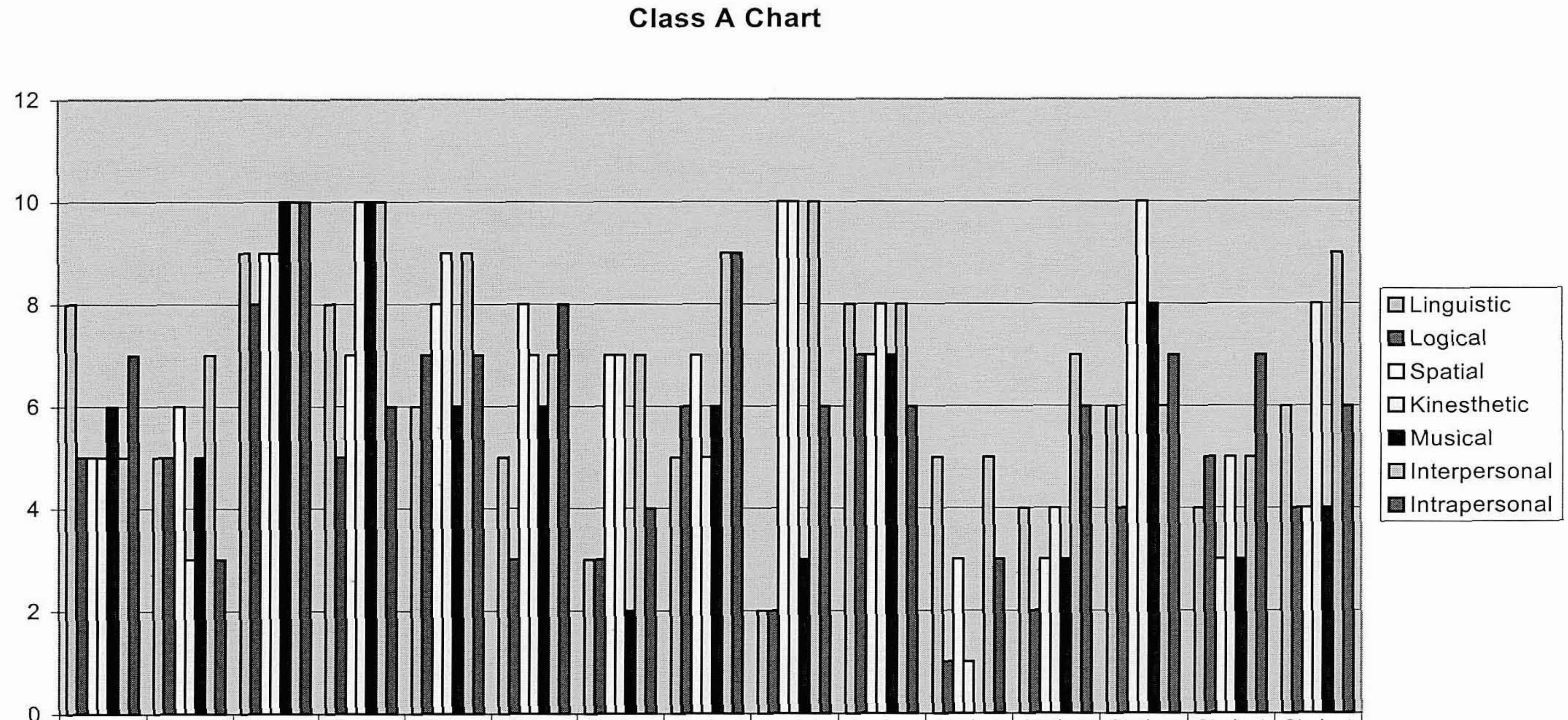
Totals for Class B

	Total	Average
Linguistic	59	5.3
Logical	59	5.3
Spatial	**67**	**6.0**
Bodily-Kinesthetic	62	5.6
Musical	61	5.5
Interpersonal	**81**	**7.3**
Intrapersonal	**73**	**6.6**

Total Averages (Class A + Class B)

	Total	Average
Linguistic	143	5.5
Logical	122	4.6
Spatial	162	6.2
Bodily-Kinesthetic	**165**	**6.3**
Musical	140	5.3
Interpersonal	**195**	**7.5**
Intrapersonal	**171**	**6.5**

Figure 1



	Student 1	Student 2	Student 3	Student 4	Student 5	Student 6	Student 7	Student 8	Student 9	Student 10	Student 11	Student 12	Student 13	Student 14	Student 15
▨ Linguistic	8	5	9	8	6	5	3	5	2	8	5	4	6	4	6
▨ Logical	5	5	8	5	7	3	3	6	2	7	1	2	4	5	4
☐ Spatial	5	6	9	7	8	8	7	7	10	7	3	3	8	3	4
☐ Kinesthetic	5	3	9	10	9	7	7	5	10	8	1	4	10	5	8
■ Musical	6	5	10	10	6	6	2	6	3	7	0	3	8	3	4
▨ Interpersonal	5	7	10	10	9	7	7	9	10	8	5	7	6	5	9
▨ Intrapersonal	7	3	10	6	7	8	4	9	6	6	3	6	7	7	6

Figure 2

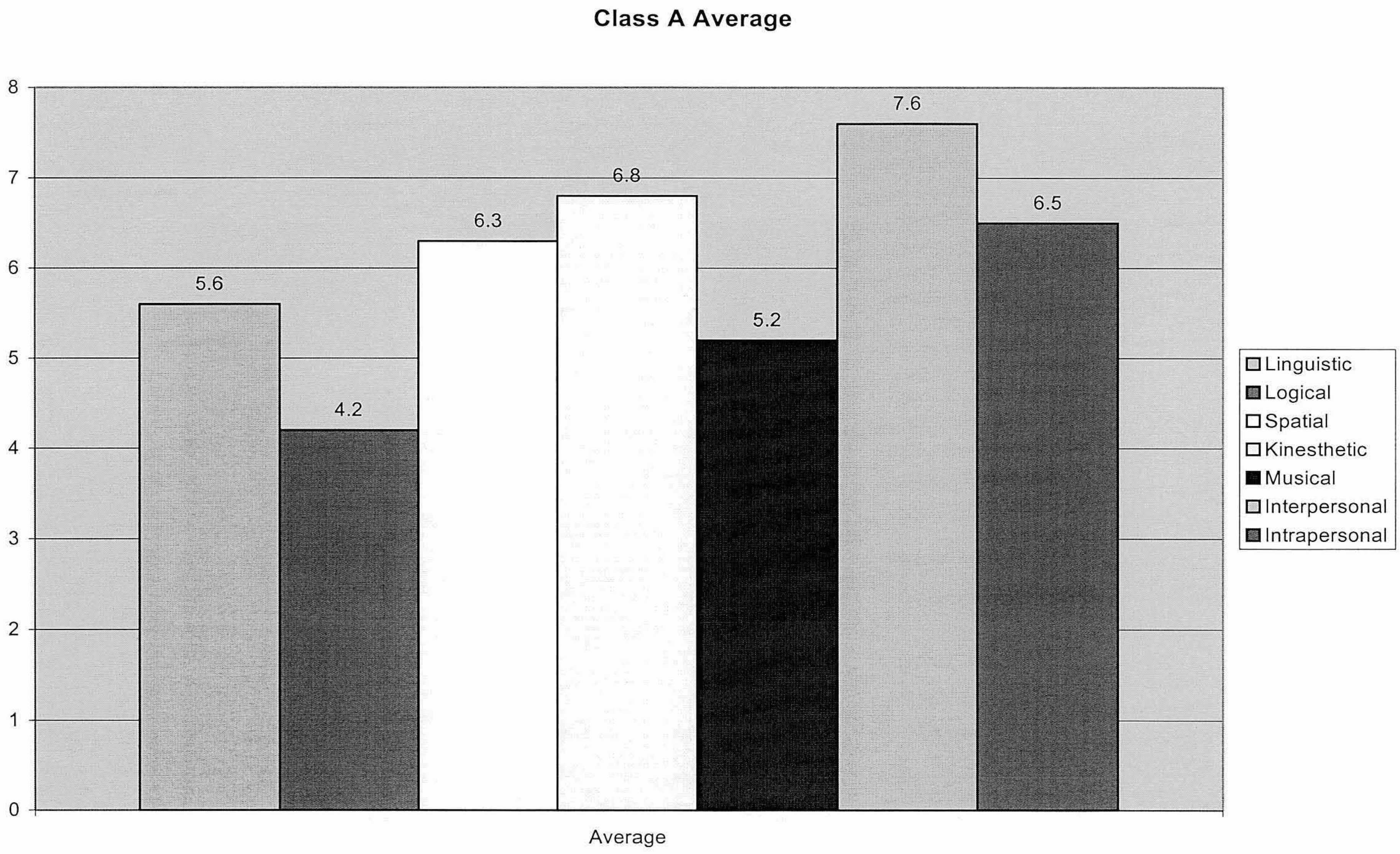
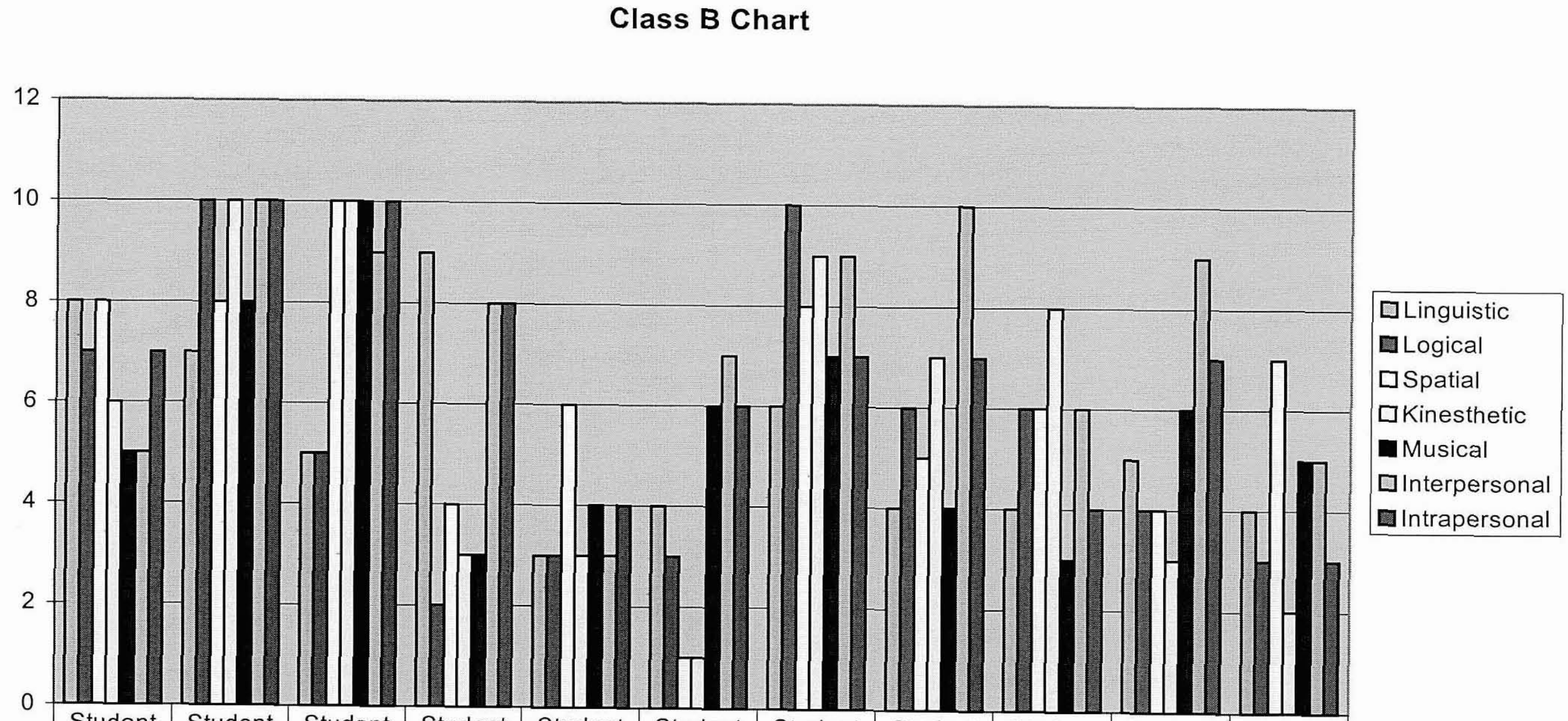

Class A Average
8
7
6
5
4
3
2
1
0
5.6
4.2
6.3
6.8
5.2
7.6
6.5
Average
Linguistic
Logical
Spatial
Kinesthetic
Musical
Interpersonal
Intrapersonal

Figure 3



	Student 16	Student 17	Student 18	Student 19	Student 20	Student 21	Student 22	Student 23	Student 24	Student 25	Student 26
▨ Linguistic	8	7	5	9	3	4	6	4	4	5	4
▨ Logical	7	10	5	2	3	3	10	6	6	4	3
□ Spatial	8	8	10	4	6	1	8	5	6	4	7
□ Kinesthetic	6	10	10	3	3	1	9	7	8	3	2
■ Musical	5	8	10	3	4	6	7	4	3	6	5
▨ Interpersonal	5	10	9	8	3	7	9	10	6	9	5
▨ Intrapersonal	7	10	10	8	4	6	7	7	4	7	3

Figure 4

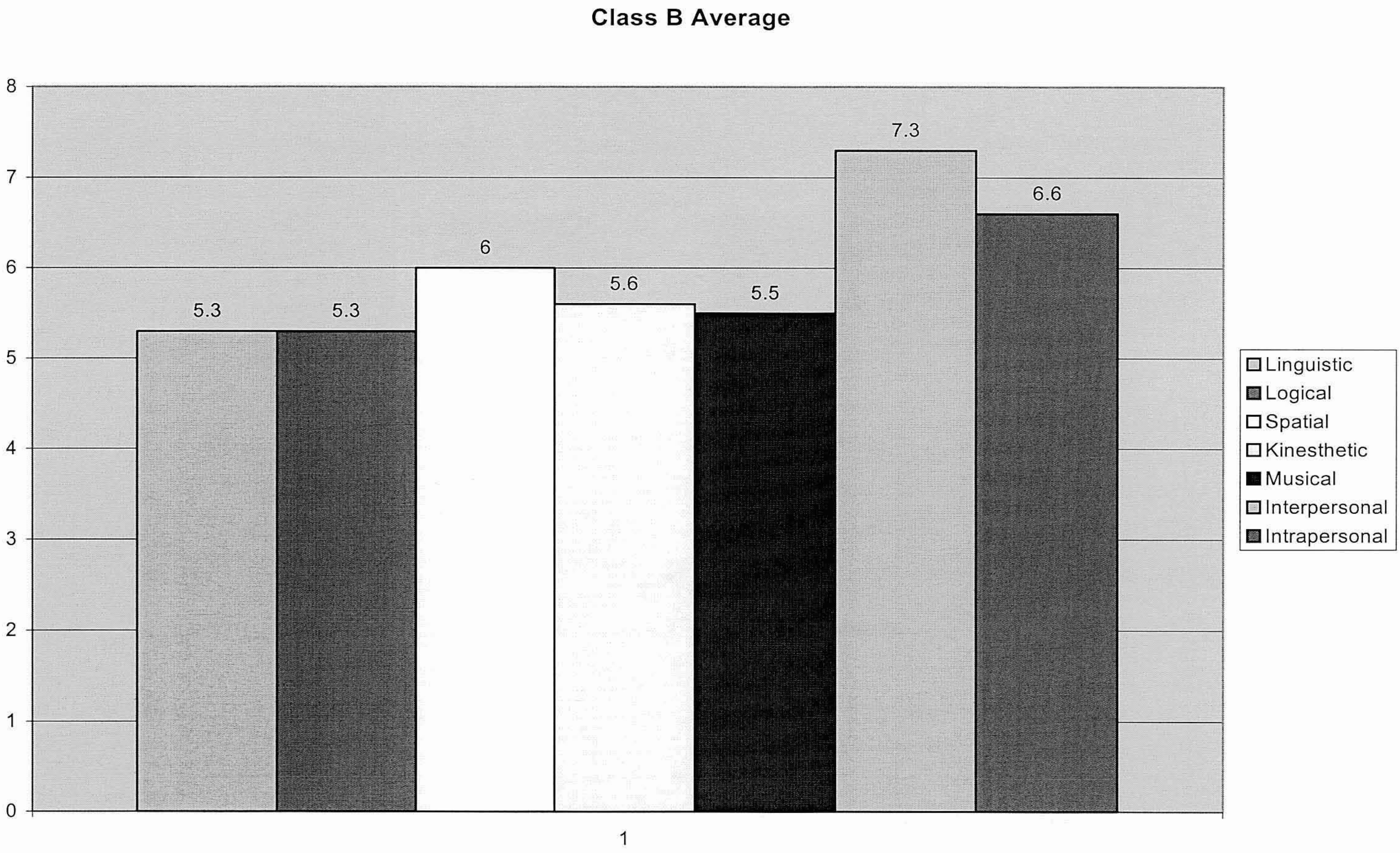
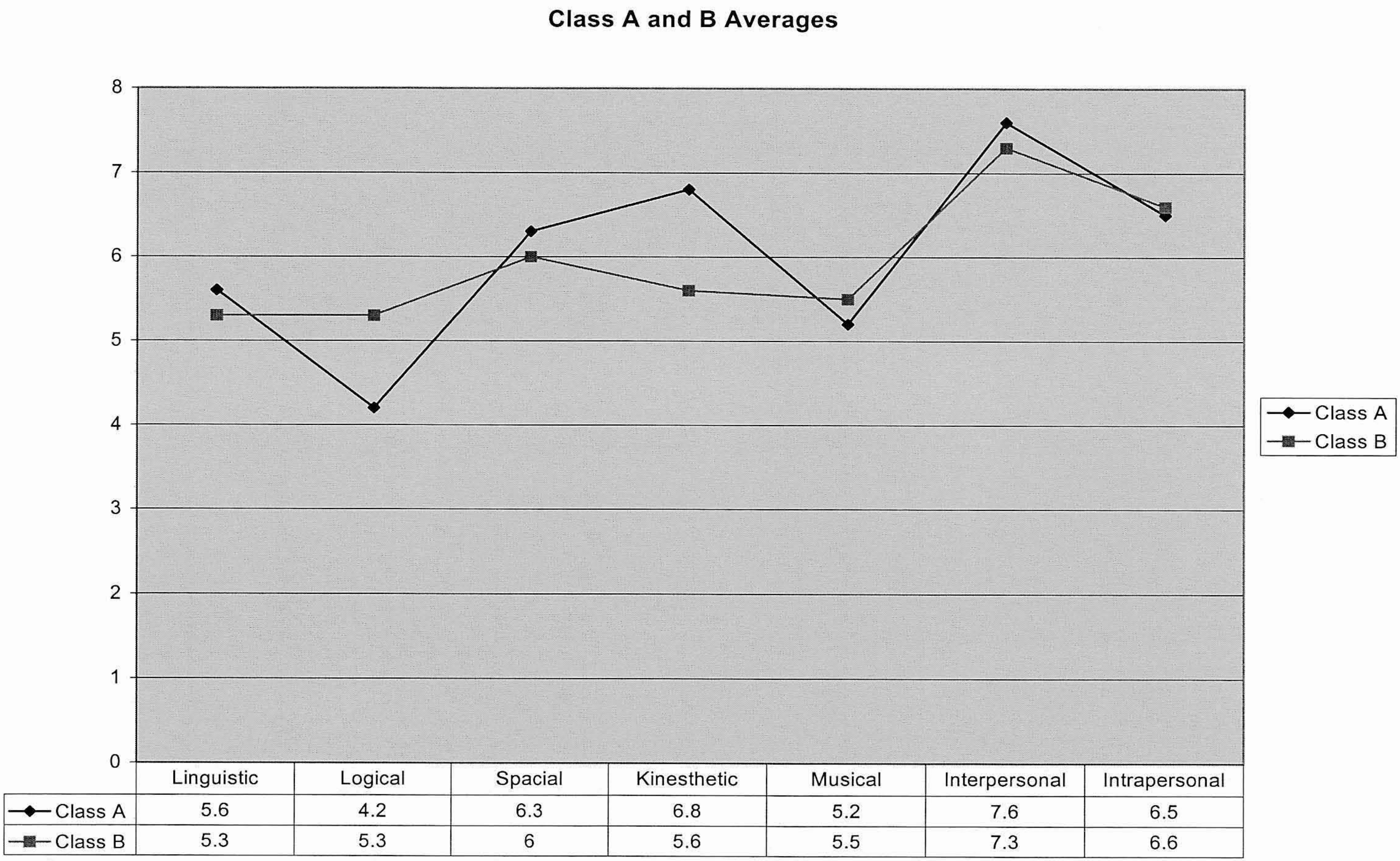

Class B Average
8
7
6
5
4
3
2
1
0
5.3
5.3
6
5.6
5.5
7.3
6.6
1
Linguistic
Logical
Spatial
Kinesthetic
Musical
Interpersonal
Intrapersonal

Figure 5



Class A and B Averages

	Linguistic	Logical	Spacial	Kinesthetic	Musical	Interpersonal	Intrapersonal
Class A	5.6	4.2	6.3	6.8	5.2	7.6	6.5
Class B	5.3	5.3	6	5.6	5.5	7.3	6.6

Inspection of Results

The results of the multiple intelligence learning inventory demonstrates that the students with learning disabilities in the pre-college summer program have a variety of strengths or intelligences. Each individual's profile was unique. However, the results also demonstrated that students with learning disabilities do not generally have particular strengths in the traditional way school is taught or assessed; linguistic and logical realms.

Taking a closer look at the results of the totals from Class A one can see that the most common intelligence shared among these particular learning disabled students was Interpersonal Intelligence (Figures 1 and 2). The second most commonly shared intelligence was Bodily Kinesthetic, followed by Intrapersonal Intelligence. The weakest areas of intelligences shared among Class A were Linguistic, Musical, and Logical, with Logical being the weakest.

The results of the multiple intelligence inventory for Class B are very similar to Class A (Figures 3 & 4). The most common intelligence among the students in Class B were Bodily Kinesthetic, Intrapersonal, and Interpersonal Intelligence, with Interpersonal Intelligence being the most commonly shared. The weakest areas of intelligence exists among Linguistic, Musical, and Logical, with Logical again coming in last.

The combined results of the multiple intelligence inventories demonstrate strengths or commonly shared intelligences in the realm of Bodily Kinesthetic, Intrapersonal, and Interpersonal Intelligences (Figure 5). The weakest areas of intelligence exists with Linguistic, Musical, and Logical abilities. Thus, analyzing the multiple intelligence inventory results as a whole, it can be determined that the "traditional" intelligences which play an enormous role in the classroom, falls within two of the three weakest intelligences in both Class A and Class B.

Ironically, Musical Intelligence scored just as low as the traditional intelligences. One would have thought that this intelligence would score higher since music is considered to be more of a right hemisphere, creative activity. However, Musical Intelligence is actually rooted within the Linguistic and Logical arenas. Yes, it takes creativity and originality to come up with a melody or a song; however, it takes ability in language to write a lyric and logic to understand beats and rhythm (Gardner, 1993). Hence, it is understandable that Musical Intelligence would score just as low as Linguistic and Logical Intelligences.

Observation

The researcher observed the learning disabled students during their participation in EDU 100, Language and Learning Development. As previously stated, EDU 100 is a diagnostic class where students begin to realize where their strengths and weaknesses exist. The teacher of this unique course also keeps an observing eye on the behaviors, styles, personalities, and abilities of each student in the classroom. Since the Theory of Multiple Intelligence is the central theme of the course, the teacher fully acknowledges student diversity, thus observation enables the teacher to understand each individual and make it possible to reach or attempt to reach every student in the classroom.

Most educators can get a basic understanding of their student's strengths, weaknesses, and personalities through observing the classroom over time (Lerner, 2000). For example, student's ability to write can clearly be seen through assignments such as essays and papers. Likewise, one can get a sense of someone's interpersonal skills through observing group activities. Outgoing, gregarious students can clearly be seen even with an inexperienced eye. This basic observation existed during this study, however the nature of this course pushed observation above and beyond its normal boundaries.

In a diagnostic course such as EDU 100, activities are developed for the sole purpose of observing students and their behaviors. Of course, the activity has objectives and purposes for the student, yet its greatest use is for the teacher to get a better sense of the individual students.

An example of such an activity, which was used for the purpose of this study, is the pie of life. Students are asked to draw a circle on a large piece of paper. They are then required to divide the circle into parts. Each part or section will demonstrate activities or responsibilities that make up an average day in their lives. The primary objective is to have students reflect on an average day so they can visualize their day. In the end, they will be able to recognize any wasted time and help them organize their lives.

The purpose of this activity for the teacher is multi-faceted. By observing the student while they are working and scrutinizing their final product, the teacher can receive a greater understanding about who that particular student is and where their cluster of "intelligences" exist. In one simple activity, many abilities and talents can be recognized.

The following are examples and descriptions of the different ways the pie of life activity can depict an individuals strengths and weaknesses within the realm of Multiple Intelligences.

Linguistic: Students with this ability will be able to articulate the pie graph into words. They will also be asked to write how they would like to change their daily routine.

Logical: Students with this ability will be able to divide the pie in appropriate proportions.

Musical: Not applicable, unless students depict parts of their day as practicing or playing a musical instrument. This may be something you may have never known.

Spatial: Students with this ability will be able to properly put abstract thoughts into a pie graph. Also, they will be able to proportionately place segments of their day into the graph.

Kinesthetic: Students with this ability will be able to demonstrate good penmanship and impressive art work (Fine Motor Skills).

Interpersonal: Students with this ability will demonstrate their talents by either sharing their graph with others or by willingly helping other students.

Intrapersonal: Students with this ability will intensely get into this project because this is ultimately an introspective activity.

Results of Observation

This researcher observed students participating in this activity. The diversity of abilities was clearly apparent (Appendix III). Each individual reacted and participated in different ways. For example, students with Intrapersonal intelligence dove deep into themselves and made precise depictions of their day, while students who were lacking in this intelligence found it difficult to ponder such an idea. Students, who flourish with Spatial and Bodily Kinesthetic abilities, created magnificent, accurate depictions of their days. Students with Logical ability made sure their graph was divided evenly and proportionally whereas students with poor logical abilities demonstrated a more creative depiction of their day. Although their angles where not precise, one could clearly understand what they were trying to express. Lastly, students with strengths in Interpersonal intelligence worked with other students either by lending a hand or sharing their day with others.

The observation of students, during this activity, demonstrated diversity in the abilities, styles, personalities, strengths, and weaknesses of every individual student. The observation reinforced the data presented through the self-inventory.

Discussion

The primary objective of this research project was to examine two emerging concepts in the realm of education; learning disabilities and multiple intelligences. With the aid of a learning inventory and observations, this researcher searched for a relationship between cluster of intelligences and learning disabled individuals. This research investigated whether the learning disabled student would have a cluster of intelligences in the areas of traditional intelligence; linguistic and logical, or whether they would demonstrate variances and uniqueness of intelligences to every individual.

Historically, American education has had deep roots within areas of logical and linguistic intelligences. The main instructional objectives from first grade to high school are reading, writing, and arithmetic. Generally speaking, information or knowledge is delivered through a lecture (oral language) or through textbooks (written language). We have come to expect all students will be able to digest and process information in such a manner. Likewise, we generally expect students to reproduce acquired knowledge through paper and pencil formats. Thus, in order for a student to be successful in a traditional setting, the student must have strengths in oral and written language. We have become a society that has placed tremendous emphasis on these "traditional" abilities. In fact, if we look closely at the definition of learning disabilities, one can surmise that it simply says those children who do not achieve success in the traditional classroom.

("those children who have a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written...") (1997 Individuals with Disabilities Education Act)

Perhaps, if we lived in a culture that placed it's emphasis on one's ability to understand oneself or others, we just might call unfriendly people or people who lack social skills as learning disabled.

By using Howard Gardner's Theory of Multiple Intelligences, this researcher explored learning disabled student's strengths and abilities. The results of my research supported my assumption that learning disabled students did not possess a cluster of intelligences in the areas of traditional intelligence since they have been diagnosed as learning disabled and/or have faced unpleasant experiences in school. The learning disabled students in my research had skills or intelligences in a variety of areas within the Theory of Multiple Intelligences, however, these intelligences did not show themselves in the traditional sense.

Although I question traditional education and the traditional perspective of intelligence, I do not underestimate the importance of linguistic and logical abilities. Every individual must have a basic understanding in these realms, however I believe it does not predict success. Many individuals can achieve success by using different abilities or intelligences. Since our curriculum in school is heavily based on linguistic and logical abilities, I recommend that educators use a variety of strategies that can reach more students, motivate them, and ultimately strengthen their weaknesses.

Limitations of Research

This research was designed to provide a holistic view at the extent to which learning disabled students shared cluster of strengths among the varieties of intelligences proposed by Howard Gardner. The study concentrated on a small population of students with learning disabilities, thus the research did not consider all the variables and aspects which may have had an impact on the results. Consequently, the limitation section of this paper discusses the research needed to validate my research.

The following are suggestions for further research:

1. A similar study should be conducted for a classroom that contains students without learning disabilities. It would be very interesting to see comparisons from a classroom of students with learning disabilities versus one without. Would their cluster of intelligences fall in a more traditional realm or would they too, have variances and uniqueness among them?
2. A study should be conducted on each student's environment and how it effects their perceived strengths and weaknesses. Does their weakness in the more traditional intelligence stem from their culture and family or by other factors?

The Multiple Intelligence Self Inventory was not tested for reliability. Therefore the results can only be generated for this group of participants. The results are limited due to the limited samples. The results are based upon observations and the data from the inventory.

CHAPTER 5

Strategies

The Theory of Multiple Intelligences has opened the door to a number of diverse teaching strategies that can easily be implemented in the classroom. Quality teachers have used some of these strategies in the classroom for many years. In other cases, the theory enables educators to have the opportunity to develop innovative strategies that are relatively new to the world of education. Multiple Intelligence theory suggests that no one set of teaching strategies will work best for all students, all the time. Every student has his or her own cluster of intelligences; thus one strategy may be highly successful for one student, yet for another student, it may not be successful. For example, a teacher who uses musical strategies such as raps, chants, and rhythms, will grab the attention of students who exhibit strengths in musical intelligence, however, students who do not posses musical intelligence will remain unmoved. (Armstrong, 2000)

Since there are so many differences among students and teachers, it is advisable to utilize a wide range of strategies in the classroom. As long as teachers use a variety of strategies in every intelligence during the school day, there will always be a time when a student has his or her own most highly developed intelligence(s) actively engaged in learning. (Ibid)

The following strategies are examples of how teachers can utilize the Theory of Multiple Intelligences in their classrooms. The strategies come from the work of Thomas Armstrong, an educator and psychologist from Sonoma County, California. For the past fourteen years, he has been applying Howard Gardner's Theory of Multiple Intelligences to the classroom. More specifically, Armstrong believes that Gardner's theory provides the jargon for describing the inner gifts that children with learning disabilities possess.

Following the definition of the specific strategy, this researcher gives an example of how a teacher can synthesize the strategy into a particular classroom. Also, this researcher has developed seven different lesson plans for every intelligence within The Theory of Multiple Intelligence, which can be used as a guide for teachers. These lesson plans can be found at the end of this paper in Appendix IV through X.

Strategies for Interpersonal Intelligence

Students who possess strengths in Interpersonal Intelligence can be considered as social learners. They need to spend time bouncing their ideas off other people. These students have benefited from the sudden appearance of cooperative learning or student group activities. By incorporating interaction among students, teachers can tap every student's need for belonging and connection to others, while letting students with this intelligence to thrive.

Peer Sharing

Peer sharing is a rather simple strategy to implement in a classroom. The teacher simply asks their students to turn to a person next to them and share________. The blank space can be filled with a multitude of topics. You may want students to discuss material recently covered in class, or you may have them talk about the next subject in order to unlock their existing knowledge. It is the teacher's prerogative whether the students keep their same partner or switch every time so they can experience sharing with everyone in class at least once. The length of time of sharing periods is also up to the teacher. They can last as little as thirty seconds or as long as an hour. Peer sharing can evolve into peer tutoring where a student coaches specific material to another student.

In a geography or social studies class that will be studying the state of Florida in the near future, a teacher can have students discuss the state of Florida. Pairs of students can then get together and share their personal experiences of Florida to their peer. For example, students may begin talking about their vacations to Disney World or their relatives who live there. Whatever or wherever their conversation leads, it will make a connection to the material about to be presented and provide ownership that will help them remember the new information about the state of Florida. Peer sharing is a beneficial strategy that can help educators motivate students who may have believed they knew nothing or cared to know anything about the state of Florida (Subject matter).

People Structures

People Structures exist when students are brought together to collectively represent an idea, a concept, or some other learning goal in a physical form. Each student physically represents a concept or piece of the whole. The brilliance of this strategy is that students represent topics and subjects that were formerly represented only in books, overheads, or lectures. People structures raise learning out of its theoretical context and place it into an accessible social setting. (This strategy can also be considered for a Bodily Kinesthetic Intelligence strategy)

In a science class, where students are studying the skeletal system, they can build a sculpture of a skeleton in which each student represents a bone or a group of bones. The students actually become the skull, collarbone, shoulder blade, etc. By personalizing and manipulating themselves, students have a better chance of remembering the material presented. In an English class, working on grammar, students can become a sentence. Students physically become nouns, verbs, adjectives, etc. Teachers can arrange the students or let students organize themselves. Either way, students are learning by doing, and will have a better chance of retaining the material presented. People structures also present a more active role for the student rather than the more traditional passive role.

Cooperative Groups

Small groups of students working toward a common educational goal are the core component of the cooperative learning model. Cooperative learning groups should remain anywhere from three to eight students in order to be effective. Students in cooperative learning groups can approach any instructional objective in a variety of ways, with each student having some type of responsibility. Cooperative learning groups provide students with a chance to function as a social unit, which is an important prerequisite for successful functioning in real-life work environments.

For example, a group of students who are working on a group presentation on the book, Catcher in the Rye, can divide their group into different segments or responsibilities. A cooperative learning group of four students could have different responsibilities such as illustrator, screenwriter, presenter, and editor. Giving each student a job to do enables all students to be involved. It also provides another outlet for students who posses other skills and abilities, such as linguistic (screenwriter and editor) and spatial (illustrator). A social studies class that is studying different cultures and regions provides a great opportunity for cooperative learning groups. For example, students can be divided into groups and given a particular country or region. They are then given a job title or responsibility that will require them to research a particular segment of that country. Job titles may include responsibilities such as meteorologists, geographers, food critic, fashion designer, sportswriter, historian, etc. The team will work individually and together in order to develop a group presentation that they will provide to their peers.

Simulations

Simulations involve groups of people coming together to create "as-if" environments.

This temporary setting becomes the context for getting into contact with the material being learned. Simulations can involve an array of intelligences, such as bodily-kinesthetic, spatial, and linguistic, however, it is included in the interpersonal section because the human interactions that take place help students develop new levels of understanding. Through conversation and other interactions, students begin to get an insider's view of the topic they are studying.

For example, students who are learning about a particular period in time, such as the 60's, may dress up in costumes of that time, and turn their classroom into a place that may have existed during that particular era. Students will be living the 60's, by wearing bellbottoms, protesting the war, and demonstrating “sit-ins” all in the confines of their classroom. By taking ownership of the 60’s and actually simulating that generation, students are actively learning and have a greater chance of understanding what they are learning. In a science or social studies class, students can turn their classroom into a tropical rainforest. By working individually or within cooperative learning groups, students can decorate their classroom to represent whatever region of the country they are studying. Pictures of animals and plants can be placed strategically throughout the classroom in order for it to look authentic. By simulating particular regions, students immerse themselves in the subjects they are learning rather than just digesting words on paper.

Strategies for Intrapersonal Intelligence

On a given day, students spend approximately six hours a day, five days a week in a classroom with twenty to thirty other people. For students with well-developed Intrapersonal Intelligence, they may find this type of environment rather suffocating. Thus, teachers should develop a number of strategies that will provide students with unique histories and a deep sense of individuality. The following are examples of such strategies.

Reflection Periods

During lectures, discussions or other projects, teachers should halt their progress in order for students to reflect on the matter at hand. Reflection periods of at least one minute provide student's time to digest the information recently presented or to connect it to happenings in their own lives. The reflection period also provides a change in pace, which helps students stay on their toes, anticipating the next activity.

A quiet classroom is recommended during times of reflection, however the teacher may want to use background "mood" music in order to enhance the reflection. Also, students should not be required to share their reflection to the class, but the teacher may want to ask if any students want to contribute their thoughts to the class in order to spark discussions. Journal entries may also be implemented following reflection periods.

In an English class, a teacher may ask his or her students to reflect upon the characters of a short story that they had recently read. The teacher may then ask questions to aid his or her students through the reflection period. For example, the teacher may ask questions such as, “did the characters in the story remind you of people you know?” “Did any of the characters remind you of yourself? “who?”, “why?”, or “what happened to the characters after the story ended?” Letting students silently reflect upon something they recently learned, enables them to make personal connections to the material.

Personal Connections

A big question for many students, especially those who have developed Intrapersonal Intelligence is; "what does this have to do with me?" Of course, it is the teacher's responsibility to continually illustrate the connection from textbook to reality. This strategy helps the teacher use student's personal experiences, feelings, and associations to make connections to the topic being taught. A teacher can do this by asking questions (How many of you ever...?), through statements (You may wonder what this has to do with your lives. Well, if you ever plan on...) or through requests (I'd want you to think back in your life to a time when....). By using this strategy, students share stories and experiences before you start your lesson on a particular subject.

Students usually have the hardest time making personal connections to the lessons they receive in math class. Thus, if teachers can show them how it will effect their lives, maybe they will be motivated to learn the material they are preparing for them. For example, when covering the subject of percentages, teachers can list the many areas of life where percentages come into play, such as, tipping waiters/waitresses, sales tax, interest rates on student loans or mortgages, and most importantly, grade percentages. Another way of getting the interest of the students, especially the athletes, is preparing statistics and percentages of their favorite teams and ballplayers. Making the material real to the students provides an environment that is motivational and conducive for understanding.

Goal Setting Sessions

Students with developed Intrapersonal skills have a remarkable ability to set personal goals. This sort of ability has to be among the most important skills necessary for leading a successful life. Thus, teachers can help students immeasurably by providing them opportunities to set goals. This goal setting strategy can involve either short or long term goals. For example, you may want to ask students, "List three things that you want to learn today". Or, you may have them set a long-term goal by asking them, "What kind of job do you see yourself in after graduation". Teachers should try to allow for goal setting everyday. They should also show students a variety of ways of representing those goals, through words, pictures, photographs, etc.

A long- term goal for students in an English class could be "how many books do you want to have read this semester?" A short-term goal for the same class could be, "I will be able to recognize the main characters and plot of today's short story assignment". A general example for any class could consist of the teacher letting their students know that at the end of class, they will be required to tell their peers one thing they have learned today. Once one individual describes something they learned, no other student can repeat what the previous students described. Therefore, students must take mental notes of every new concept that is presented in class in order to successfully come up with something unique.

Strategies for Bodily Kinesthetic Intelligence

Although students leave their textbooks and folders at school, their bodies are with them wherever they go. Consequently, developing strategies to help students integrate learning with one's body can be very important to increasing retention and understanding. Traditionally, physical learning only happened in gym class and vocational education. The following strategies, however, demonstrate how simple it can be to integrate physical learning strategies into the classroom.

Body Answers

The body answer strategy involves students responding to instruction by using their bodies as a medium of expression. This strategy builds itself upon the most traditional example of this strategy, raising your hand. Instead of students raising their hands, the teacher can devise a variety of body movements that may determine levels of understanding.

For example, if a student understands material or a lecture, they may smile, blink, or hold up their fingers. If they hold up their fingers, five may represent total understanding while one finger would represent minimal understanding. Body answers can provide the teacher with a gauge on how much understanding is occurring in their classroom. For example, during a lecture, students can put their index finger on their temple to demonstrate their understanding, while students who are confused, can scratch their heads.

Classroom Theater

The Classroom Theater strategy involves students recreating the material in their textbooks by dramatizing or role playing the content. The Classroom Theater strategy can be as informal as an impromptu role-playing activity or as formal as an hour-long play at the culmination of a grading period or educational theme. This strategy can be done with intricate props and resources or it may simply include materials found in the classroom.

In a history class, students could act out a presidential debate from the past. For example, students can recreate the election of 1860. Two individuals would play Abraham Lincoln and Stephen Douglas, while others would represent the other players in this election such as John Breckinridge, Joseph Lane, and William Seward. The remaining students could play the different factions that existed at that time such as the Northerners, Southern landowners, and slaves to name a few. In an English class that is in the process of reading Inherit the Wind, students can act out the court scenes that make this book so enticing. The main characters are assigned to a few students, while the rest of the class plays a supporting role. Either way, students must understand the issues that were important at that particular time in order to facilitate the diatribe that is required for this strategy. Creating a talk show can be another way of demonstrating how to use this strategy in the classroom. The panel on stage can be the main characters of a book or the players of an important historical event. The students in the audience must prepare questions in order to facilitate the talk show atmosphere. For example, one student can play Regis Philbin, while others play Neil Armstrong, John Glenn, and the rest of their moon walking team.

Kinesthetic Concepts

Kinesthetic Concepts are basically found in the familiar game of charades that children and adults have enjoyed for years. This strategy involves the teacher introducing a concept with physical illustrations or having students demonstrate a concept or definition through body movements. The activity requires students to translate information from linguistic or logical mediums into purely bodily kinesthetic expression.

In Biology class, a teacher could have students physically demonstrate the growth of a frog from birth to tadpole to frog. They can also have students demonstrate how snakes move through the sand. In a math class, students can be required to physically demonstrate math theories such as addition, subtraction, multiplication, division, fractions, etc. In an English class, students can physically represent parts of a sentence. Each student can represent a noun, verb, adjective, etc. and make sentences, which the other students must attempt to read.

Hands on Thinking

Students who have well-developed bodily kinesthetic skills should be provided opportunities to learn through manipulating objects and creating things with their hands. Many schools and teachers have already implemented manipulations in their classrooms.

Traditionally, it appears in math and science classes in forms of classroom experiments and manipulations. However, this strategy can be used in an array of curricular areas as well.

At a very basic level, students can manipulate clay to study spelling words or new vocabulary words. At a higher cognitive level, students can be asked to create clay or wood structures, sculptures, or collages in order to convey understanding of concepts and ideas. For example, students could be asked to create something that represents the economic meaning of "supply and demand", then share productions during a classroom discussion. In a history class, time lines can be developed by the students in order to represent when things happened during a particular time period. Rather than supplying the students with pencil and paper, let them have magazines, scissors, markers, etc. so the can create a unique depiction of each significant event on the time line. In English class, students can manipulate different shapes to represent varying parts of a sentence. For example, a square can be a noun, a triangle a verb, a rectangle an adjective and so on. Parts of the sentence can also be represented by color.

Strategies for Spatial Intelligence

Spatial Intelligence has been important to human beings since the days of pre-historic man drawing images on the walls of caves. Unfortunately, in today's classroom, the idea of presenting information to students through visual as well as auditory modes usually translates into simply writing on the board, a practice that is linguistic in nature. Spatial Intelligence, involves pictures, either in one's mind or images in the external world. The following are strategies that will help students with developed Spatial Intelligence understand material.

Visualization

Visualization involves students translating book and lecture material into pictures and images by having them close their eyes and picture whatever is being studied. One application of this strategy involves having students create their own movie screen in their mind's eye. Students then place material they need to remember, such as spelling words, vocabulary words, and other data in the mental movie. When students are required to recall information, students then simply go inside their mental image and retrieve it.

Teachers can provide a more open-ended application of this strategy by having students visualize what was just read or studied. Afterward, they can draw or discuss what they saw with the rest of the class. Teachers can also have more control of what they visualize by providing a guided tour through their imagery. For example, a history teacher can visually walk his or her students through the jungle of Vietnam or through New York City during the depression. A biology teacher can visually walk his or her students through a tropical rainforest, a desert, a lush forest, or arctic tundra.

Color Cues

The Color Cue strategy involves putting colors into the classroom and using it as a learning tool. Traditionally, most mediums of education come in black and white forms, such as textbooks, worksheets, and chalkboards. Teachers should use a variety of colors of chalk, markers, and transparencies when writing in front of the class. Students should be provided with a variety of colored pens and pencils, and colored paper to write assignments. Teachers should educate students to use different colored markers to "color code" material they are studying.

Examples of how this strategy can be used in the classroom are as follows. Students can be taught to use a red marker to mark key words, while supporting information in blue. Or, when studying grammar, students can mark verbs as red, nouns as blue, adjective as green, etc. Finally, teachers should use colors to emphasize patterns, rules, or classifications during instruction. For example, a history teacher can use different colors in order to differentiate political parties and their agendas during a specific election year. By color coding students can peer through their mental eye and visualize material when then are asked to reproduce information during an exam.

Picture Metaphors

A metaphor is using one idea to refer to another. The strategy of Picture Metaphors involves expressing one idea in a visual image. Developmental psychologists have suggested that children have a tremendous ability in understanding metaphors. Unfortunately, they have also suggested that this skill often weaken, as children grow older. However, educators can try to strengthen this skill by using metaphors in the classroom. The educational value of metaphors lies in establishing connections between what is already known to the new information being presented. Teachers should try to link main ideas to a visual image.

Examples of how this strategy can be implemented into the classroom are as follows. In a history class, a teacher may ask, "How is the growth of the American colonies similar to the growth of a puppy?" In a math class, a teacher may ask, "How are fractions similar to cutting your birthday cake?" On the other hand, teachers can let students develop their own metaphors. For example, they may ask, "if the numbers one through ten were people, what would they be like?" By creating metaphors, students have a much better chance of understanding material and retaining it.

Idea Sketching

Idea Sketching or doodling can clearly be seen in the notebooks of great inventors such as Charles Darwin, Thomas Edison, and Henry Ford, which reveals that these individuals used simple drawings in developing many of their powerful ideas. We should recognize the value this kind of visual thinking can have in helping students articulate their understanding of subject matter. This strategy involves having students draw the key point, main idea, or central theme. Teachers should favor series of quick sketches that articulate an idea over neatness and realism.

In a history class, the teacher can have students draw sketches demonstrating World War I and/or The Great Depression. In a science class, the teacher can have his or her students draw sketches demonstrating the Green House Effect, Erosion, etc. As a follow up to the sketching, teachers should integrate a discussion while using everyone's illustrations. Again, teachers should place emphasis on students understanding of subject rather than the quality of the drawing.

Strategies for Musical Intelligence

For thousands of years, cultures used singing and chanting to convey knowledge from generation to generation. More recently, advertisers have learned that a catchy jingle can help them sell their client's product. However, educators have been slower to realize the importance of music in terms of learning. As a result, most of us have a thousand jingles in our long-term memory, however, we have very few school related musical pieces in the recesses of our brain. The following strategies will help educators begin to integrate music into core curriculum.

Rhythms, Songs, Raps, and Chants

This strategy simply involves teachers putting their subject matter into a rhythmic format that can be sung, rapped, or chanted. At the simplest level, this can mean singing spelling words or times tables to a popular song. You can also identify the main point you want to emphasize in a lecture, main idea of a story, or the central theme of a chapter, and then place it in a rhythmic format.

The following are examples of how to use this particular strategy in the classroom. While teaching students about The American Revolution, teachers can have one half of the class chanting "American Revolution, American Revolution", while the other half sings, "no taxation without representation". In a math class, students can chant the order of operation while doing trigonometric functions, "sine, sine, cosine, sine". In an English class students can be required to develop a rap or song about The Great Gatsby. By inviting students to create songs, raps, or chants that summarize, synthesize, or apply meanings from subjects they are studying, students move to an even higher level of learning and understanding.

Discographies

This strategy involves supplementing teachers' bibliographies for the curriculum with lists of recorded musical selections. The musical selections should embody the content you are trying to convey.

For example, in a history class, while developing a unit about the 60's, teachers could collect songs related to that period. Songs could include "Unfortunate Son", "Ohio", "Love One Another", "Give Peace a Chance", etc. After listening to the recordings, the class can discuss the content of the songs in relation to the theme of the 6o's. In this particular example, the songs will invigorate topics such as the Vietnam War and the

Civil Rights Movement.

Mood Music

Mood Music is a strategy that involves the teacher locating recorded music that creates an appropriate mood or emotional atmosphere for a particular lesson. Such music can even include sounds such as nature sounds or classical sounds that produce a well-balanced emotional state.

For example, prior to reading or during classroom silent reading of The Old Man and the Sea, teachers can play a recording of sea sounds that will produce waves crashing, sea gulls crying, etc. In a history class, while learning about the American Revolution, the teacher can play music from a marching band or any music representing the birth of our nation. In a science class that is studying birds, the teacher can play sounds of birds chirping and calling while they are presenting their material.

Strategies for Linguistic Intelligence

Linguistic Intelligence is probably the easiest intelligence for which to provide strategies because so much attention has been given to its cultivation in schools. The following strategies diverge from the traditional way one might teach students linguistics such as textbooks and lectures. They provide a new way to reach students who have well-developed Linguistic Intelligence.

Storytelling

Storytelling is a valuable source of teaching students new information, even though it has been used mostly for entertainment or during special enrichment times during the school day. Cultures have used storytelling for thousands of years by passing on traditions and folklore from generation to generation. By using storytelling in the classroom, teachers weave essential concepts, ideas, and instructional goals into a story that you tell directly to students. Although storytelling is usually thought of as a means of conveying knowledge in the humanities, it can be applied to math and science as well.

Teachers must prepare for storytelling by listing the essential concepts that need to be included in the story. The teacher must then create a magical world that includes the key elements while carrying a plot that students can visualize. The stories need not be especially original or fabulous for children to benefit from them. Students will be impressed by the teacher's willingness to be creative and being able to speak from the heart about a particular subject.

In math class while teaching the geometric shape of triangles, teachers can create a character that lives in a magical place that is made up of only triangles. In English class, teachers can develop a character about a lonely adjective in search of his noun. In history class, the teacher can develop a character from the late 1880's, who ventures west, leaving his home in search of gold, prosperity, and the American dream.

Tape Recording

Tape Recording offers students a medium through which to learn about their linguistic skills and employs verbal skills to communicate, solve problems, and express inner feelings. Students can use a tape recorder in order to "talk out loud" about a problem they are about to resolve.

A tape recorder is very useful prior to writing a paper. Students can reflect on what they are about to write, in order to get the writing juices going. Students who generally are very limited in their writing skills can use the tape recorder in order to record their thoughts on tape as an alternative mode of expression. Once they have their thoughts on tape, they can transfer their ideas to paper. Students who have trouble taking notes while listening to a lecture can use this strategy to their advantage. This enables the student to go back and hear the lecture again, filling in holes, and writing accurate notes.

Journal Writing

Journal Writing involves students reflecting and making ongoing written entries regarding a particular topic or theme. Entries can be specific or open-ended depending upon what the teacher and student wants to get out of this exercise.

Examples of how to integrate journal writing into the classroom are as follows. Teachers can simply ask students open questions such as "What were you thinking or feeling today in class?" Or, the journals can be specific in nature, such as, ""Write a journal entry as if you were writing a letter home while fighting overseas during World War II". Journal entries can be used in any subject. For example, in Math class, students can write about certain theories or postulates they have used recently. In Science class, students can write about all their experiments, collect the data, and hypothesize about future outcomes. Finally, in English class, students can write about events leading to the current book or story they are reading or even stop at certain places in the book and answer the question, "what comes next?" They may also write about what happens to the characters after the story ends, thus, they write the sequel.

Publishing

Traditionally, students and teachers get into a routine of writing a paper, grading a paper and then the paper is dismissed or discarded. This process can be quite negative for students and deter them from being creative in their writings. The strategy of Publishing will help turn an arduous task into an exciting opportunity.

Publishing student's works can take a variety of forms. The writings of students' works can be either photocopied or stored on a website so the school and families of students can witness them. Another way to publish students' works is to submit them to the school newspaper or newsletter. Finally, students can submit their works to a local newspaper, magazine, or other publishing source that includes students work.

Strategies for Logical Mathematical Intelligence

Traditionally, Logical Intelligence is usually regulated to Math and Science classes. However, components of Logical Intelligence can be used throughout all subjects. The following are strategies that can be implemented in the classroom to aid logical thinkers.

Socratic Questioning

Socratic Questioning strategy provides an alternative to the concept of teachers being knowledge dispensers. In Socratic questioning, the teacher serves as a questioner of student's points of view. Rather than talk at students, the teacher participates in the dialogues with them, aiming to uncover the rightness and wrongness of their beliefs. A teacher simply serves as a guide as students share their ideas about how the world works.

A few examples of this strategy may include the following. A history student is asked to defend his theory that President Clinton would have never won the election of 1992 if Ross Perot had not entered the scene. Or, students in an English class would be asked to defend the motives of the main character from The Catcher in the Rye. The purpose of this strategy is to help them sharpen their critical thinking skills so that they no longer form opinions simply out of strong emotions. It is important to note that teachers should not embarrass or make students feel, as they are wrong in their thinking.

Calculations and Quantifications

The Calculations and Quantifications strategy provides a place for math and numbers outside of Math class. This strategy should be very exciting for the front leading educational reform toward testing and standardization. Math and numbers are everywhere around us, including other subjects in school.

In History class, students can scrutinize populations in different countries, lives lost in wars, prices of goods at various moments in time, etc. In English class, you will be surprised how often numbers come up in novels and short stories. Once a student or a class approaches the numbers or calculations in the story, simply pause for a short period of time and develop word problems. By tuning into numbers and integrating math problems in the midst of non-mathematical subjects, teachers can better engage highly logical students, and other students can learn to see that math belongs not only in math class but in life.

Classifications and Categorizations

Individuals who have strengths in logical intelligence can get motivated or stimulated any time information or data is represented in some kind of rational framework. The strategy of classifying and categorizing enables logical thinkers to place information in tidy sections in order for them to understand their differences.

In geography or social studies class, students can gather into cooperative learning groups and brainstorm various classifications for each country they are studying, such as climate, size of land mass and populations, dates of independence, etc. In science class, you may classify elements in their different states, such as gases, liquids, and solids. Classifying and categorizing within different subjects enables the student to think about what they are learning in a whole different light. The value of this strategy exists by having students organizing fragments of information around a central theme. Thus, they will be more likely to remember the information when it comes time for the test.

Final Thoughts

It is a widely accepted notion that we, as human beings, are unique. Our physical characteristics and personality traits are as diverse as the snowflakes that fall in late December. However, in the educational realm, we assume that everyone should be able to learn and demonstrate knowledge in the same traditional fashion. I find it curious, that in today's culture of diversity, global awareness, and sensitivity toward differences, we still try to teach our children in the same traditional manner. In fact, as we head into the 21st century, it appears that educators will be placing even more emphasis on the traditional intelligences with the influx of standardized testing. It is this researchers belief that only by embracing diversity and changing the way we convey our curriculum, will we be able to reach, motivate, and connect information to our students. Through the use of a variety of techniques and strategies, educators will be able to reach every student in the classroom, no matter where their true intelligence lies.

APPENDIX I

Multiple Intelligence Self Inventory

DIRECTIONS: Check all statements that apply to you. Add up the number of checks per Intelligence and place number where it says total. A score of seven or higher demonstrates an area of strength.

Linguistic Intelligence:

I ...

___ write well and enjoy putting thoughts on paper (or in the computer).
___ enjoy telling stories or jokes.
___ can remember names, places, dates or trivia.
___ enjoy word games.
___ enjoy reading books and magazines.
___ am a good speller.
___ enjoy nonsense rhymes, limericks, puns, etc.
___ enjoy listening to the spoken word.
___ have a good vocabulary.
___ enjoy communicating by talking or writing.

Total ______

Logical-Mathematical Intelligence:

I...

___ ask questions about how things work.
___ can do arithmetic problems in my head.
___ enjoy math classes.
___ enjoy math games, e.g., computer math games.
___ enjoy chess, checkers, or other strategy games.
___ enjoy logic puzzles or brainteasers.
___ like to put things in categories or hierarchies.
___ like to use a variety of thinking skills to figure things out
___ am good at thinking on an abstract or conceptual level.
___ clearly see cause-effect relationships.

Total ______

Spatial Intelligence:

I ...

___ can visualize things clearly in my mind.
___ like maps, charts and diagrams better than words.
___ often daydream.
___ enjoy artistic activities.
___ good at drawing things.
___ like movies, pictures and other visual presentations.
___ enjoy mazes, jigsaw puzzles, and Rubik's Cubes.
___ can manipulate three dimensional drawings in my head.
___ frequently doodle or sketch.
___ enjoy creating designs on paper or by computer.

Total ______

Bodily-Kinesthetic Intelligence:

I ...

___ am good at sports.
___ fidget when asked to sit for very long.
___ am good at mimicking others' gestures.
___ like taking things apart and putting them back together.
___ like touching/holding objects and moving them around.
___ enjoy being on the go; running, jumping, moving, wrestling.
___ like working with my hands, e.g., sewing, repairing, making things.
___ use many gestures when expressing myself
___ experience different physical sensations when thinking or working.
___ enjoy expressing myself through movement, eg., dance

Total _____

Musical Intelligence:

I ...

___ can distinguish among different sounds/tones.
___ remember melodies easily.
___ can carry a tune.
___ can play a musical instrument.
___ often hum or sing to myself.
___ am sensitive to noises, e.g., rain, traffic.
___ like doing things in a rhythmic way.
___ can hear music in my head.
___ enjoy reading music.
___ can keep time to a variety of music.

Total _____

Interpersonal Intelligence:

I ...

___ enjoy socializing
___ am a natural leader.
___ am a good listener when friends have problems.
___ make friends easily.
___ enjoy clubs, committees and organizations.
___ like teaching things to others.
___ have many good friends and close acquaintances..
___ am good at seeing another person's point of view.
___ enjoy talking to groups.
___ enjoy exchanging ideas with others.

Total _____

Intrapersonal Intelligence:

I ...

___ know how to set goals and reach them.
___ clearly know my strengths and weaknesses.
___ am comfortable with myself and enjoy my own company.
___ feel good about who I am and what I stand for.
___ would be described as someone who "has their act together."
___ stand up for what I believe, regardless of what others think.
___ am continually learning from my successes and failures.
___ am not much concerned about fads, fashion or what is "in."
___ am always honest and up front about how I am feeling.
___ almost never feel bored or "down."

Total ______

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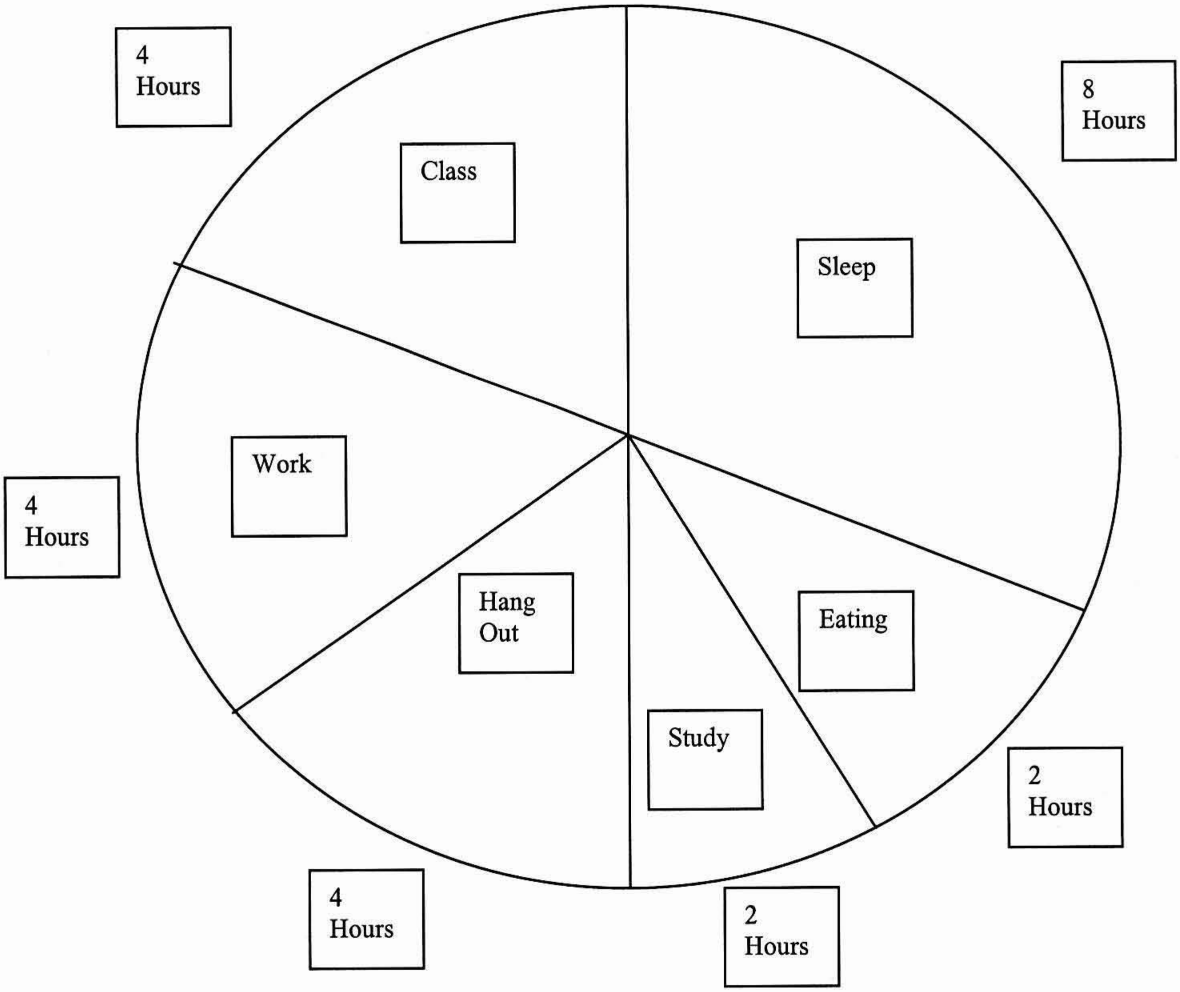
[redacted]

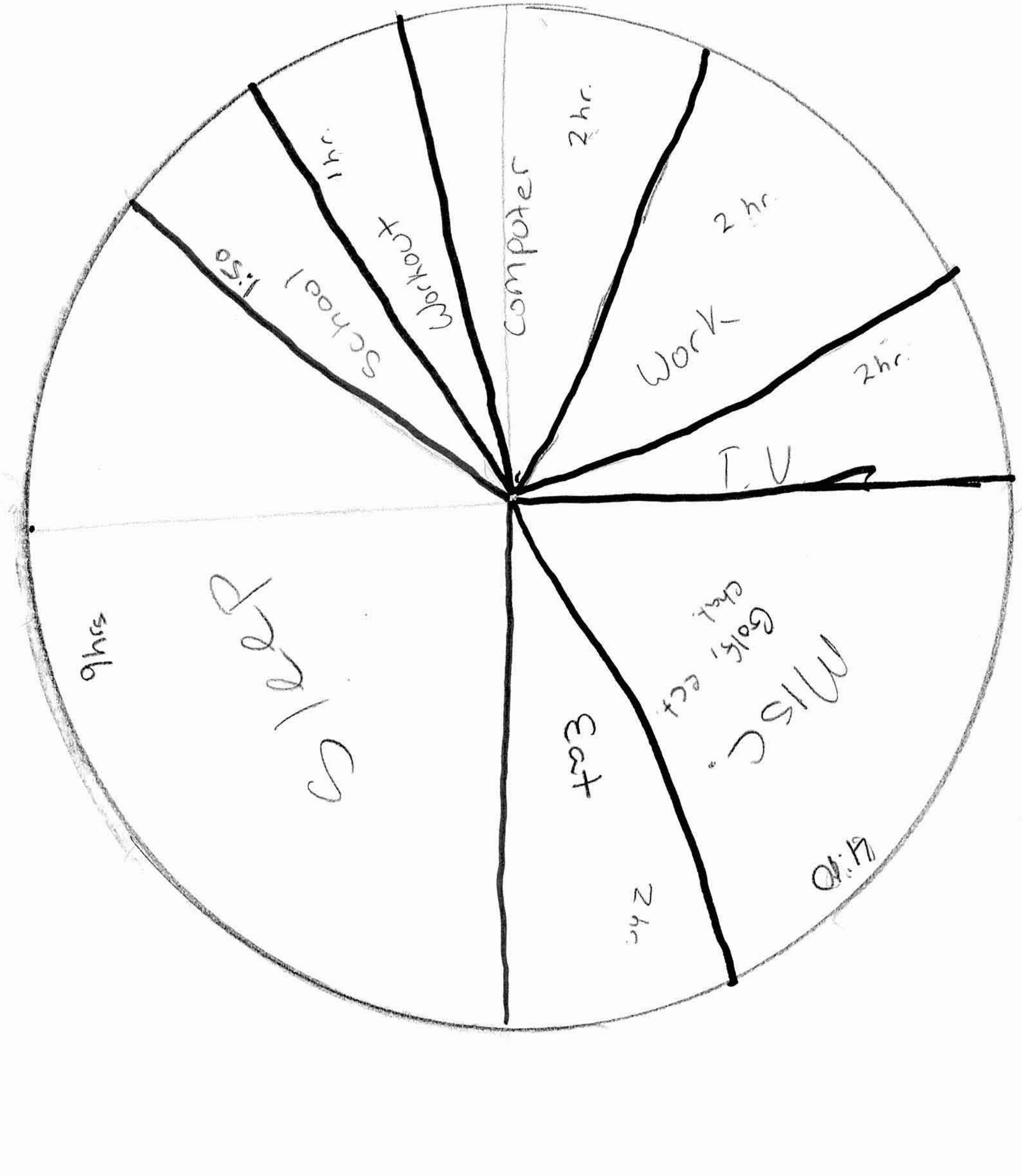
APPENDIX II

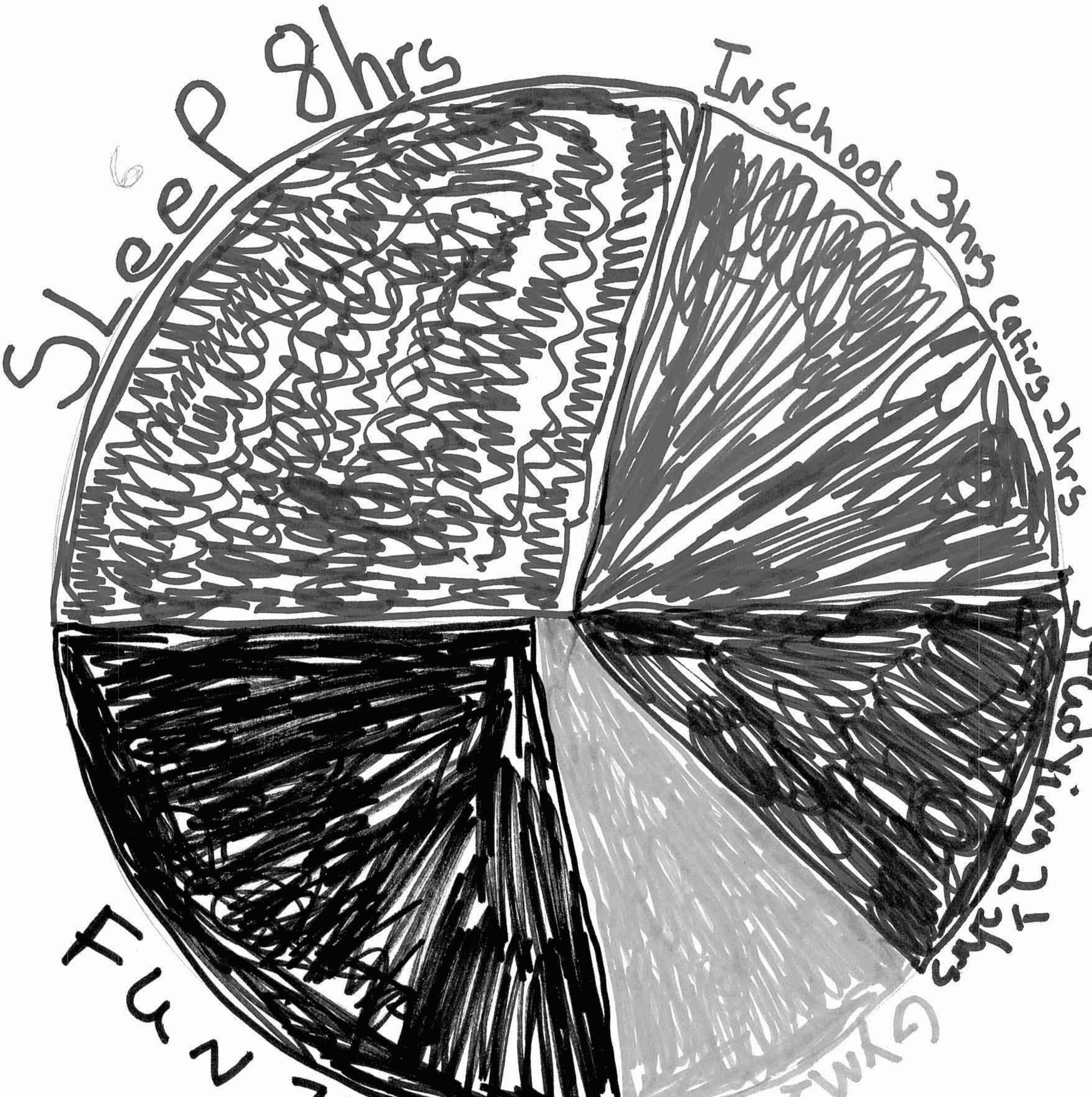
Pie of Life
(An Example)


4 Hours
Class
8 Hours
Sleep
Work
4 Hours
Hang Out
Eating
Study
2 Hours
4 Hours
2 Hours

APPENDIX III

Pie of Life
(Student Samples)


School
1:50
Workout
1hr.
Compoter
2hr.
Work
2 hr.
T.V
2hr.
Misc.
Golf, ect
chat.
4:10
Eat
2hr
Sleep
9hrs


SLeeP 8hrs
6
In School 3hrs
eating 2hrs
Studying 1hrs
Gym 2hrs
FUN 7 1/2 hrs

APPENDIX IV

Multiple Intelligence Lesson Plans

Lesson Plan
Interpersonal Intelligence

Subject: English Class
Grade: Seventh Grade

I. GOAL

Students will enhance their reading comprehension, writing skills, and interpersonal skills.

II. OBJECTIVES

Students will read a selected text, work in cooperative learning groups, and write appropriate dialogue for talk show format presentation.

III. MATERIALS

Selected books, chairs, paper, writing utensils

IV. ACTIVITIES

Students will be divided into groups of five individuals. Each group will choose a book from a list of appropriate readings chosen by the instructor. Students will then read the selected text. After reading their book, students will work together in order to make a class presentation. Each member will take on a role, either the talk show host or a person from the text. The groups will then prepare a script of questions and answers regarding the characters and the book. Group members will become their roles. By using the descriptive language in the text and with the use of their own imagination, students will become the characters from the book. Once their written script is completed, each group will make their presentation to the classroom.

V. EVALUATION

Students will be evaluated through observation. By observing each individual during the presentation, the instructor can ascertain which individuals read and comprehended the material. The written dialogue will also be evaluated. Instructors can evaluate by groups, by individual, or both.

Interpersonal Intelligence:

Students who have strengths in Interpersonal Intelligence will be drawn and motivated toward an activity such as this because of the interaction between the students in their cooperative learning groups. They will also enjoy and excel in the presentation portion of this lesson. A student with Interpersonal Intelligence generally loves to perform and learn socially. This type of lesson or activity will enable them to sustain attention and hopefully understand the material being presented.

Other Intelligences involved in this lesson:

Linguistic:	Through the written and oral expression segments of the lesson.
Intrapersonal:	Through student's reflection and becoming the characters.
Kinesthetic:	Students may use their bodies to express themselves as they participate in the presentation.

Lesson Plan
Intrapersonal Intelligence

Subject: English Class
Grade: Ninth Grade

I. GOAL

Students will enhance their listening, reading, writing, and thinking skills.

II. OBJECTIVES

Students will be able to listen attentively and think critically. Students will write a creative essay and illustrate a book cover.

III. MATERIALS

Text book, construction paper, scissors, colored pencils, markers, notebook paper, and writing utensils

IV. ACTIVITIES

Students will read a selected literary short story from their text with the classroom. Collectively students will read the short story. The instructor will stop occasionally and direct questions about the story for the students to answer out loud. The amount of times that reading is ceased is up to the instructor. Once the story is completed, the students are asked to write a creative essay where they will write the sequel to the story. Students will use their imaginations and reflect on the characters in the story and develop another ending. Once they complete their essays, they then draw a book cover for the short story or their new ending. When everyone is finished, students will be asked to share their work with their peers if and only if they desire to.

V. EVALUATION

Students will be evaluated through observation during the direct questioning. Students will also be evaluated for their creative writing skills. Lastly, they will be evaluated on the book covers they create. The emphasis should be placed on creativity rather than artwork itself.

Intrapersonal Intelligence

Students who have strength in Intrapersonal Intelligence will excel in this lesson because of the reflection piece of writing the sequel. They can ponder their imaginations, relate to the characters, and create a new story. Student with Intrapersonal Intelligence will take ownership of the short story, thus enabling them to hold onto the content, while developing their critical thinking skills and writing skills.

Other Intelligences involved in this lesson:

Interpersonal: Through the direct answer segment of this lesson and at it's conclusion when students share their work.

Kinesthetic: By having students illustrate a book cover, they must utilize gross and fine motor skills.

Spatial: While students are using their imagination and creating a sequel and book cover, they must recreate the story in their minds eye.

Linguistic: Through the writing of the sequel.

Lesson Plan
Bodily Kinesthetic

Subject:	Language Arts
Grade:	First Grade

I. GOAL

Student will be able to recognize words and successfully label a human silhouette.

II. OBJECTIVES

The students will be able to recognize words on the dry erase board and successfully label a human silhouette.

III. MATERIALS

Long paper, Markers, colored pencils, notebook paper, tape, pencils,

IV. ACTIVITIES

Students will be divided into groups of three. Each group will be given a long paper roll. One student will be asked to lie on the paper in order for the other two to trace the outline of his/her body. Once the outline is completed, the teacher will write a word on the dry erase board. Each word should pertain to the human body. Students then work together to decide where that word fits on the human body. Once they decide one member of the group writes the word where it fits on the paper. Students should take turns writing a word on the paper. Once the list of words is exhausted, students can then name the "body", and color and dress their "body". After completing this, the students then return to their desks to write a short story about their new friend. Students will be asked to share their short story with the rest of the class.

V. EVALUATION

Students will be evaluated through observation. Their short stories will also be collected, evaluated, and placed in their portfolios.

Bodily Kinesthetic Intelligence:

Students with Bodily Kinesthetic Intelligence will completely enjoy an activity such as this, because they can manipulate what they are learning. Instead of seeing and reading words in a book, they can actually feel and touch the words. The words become real and will help them understand the material.

Other Intelligences involved in this lesson:

Interpersonal: Through cooperative learning groups and presenting their short stories to the rest of the class.

Spatial: By letting students create a body and placing the words on that body, you are tapping into their spatial abilities.

Intrapersonal: While students reflect on their new friend they reflect and ponder their imaginations, thus using Intrapersonal Intelligence.

Linguistic: Through recognizing words and writing the short story. Finally, through the oral presentation at the end of the lesson.

Lesson Plan
Spatial Intelligence

Subject: Language Arts
Grade: Third Grade

I. GOAL

Students will enhance their sentence structure abilities.

II. OBJECTIVES

Students will be able to correctly place nouns, verbs, adjectives, etc. in a sentence.

III. MATERIALS

Building blocks: rectangles, triangles, squares, spheres; paper, and pencils

IV. ACTIVITIES

Students will be given building blocks. The instructor will decide and tell students which shape represents which part of the sentence. For example, a blue square will represent a noun and a yellow sphere will represent an article. A red triangle will represent a verb and a green rectangle will represent an adjective. Students will then physically manipulate the blocks in order to represent a sentence that the teacher writes on the dry erase board. For example, if the sentence is; "the boy played" then the students should place the blocks in the following form: yellow sphere, blue square, and red triangle. This process is repeated, while increasing the level of difficulty. At the end of the class, the students are given a short quiz. The quiz can consist of them putting the blocks together and/or actually writing the answer on a piece of paper.

V. EVALUATION

The students will be evaluated through observation. They will also be evaluated through the quiz at the end of class.

Spatial Intelligence:

Students with Spatial Intelligence will find this lesson to be very productive as far understanding the theory of grammar. Through manipulating blocks and visualizing the sentence within their mind's eye, the sentence comes to life. When it comes time to take the quiz, the can reach back to their spatial abilities and retrieve the correct information.

Other Intelligences involved in this lesson:

Kinesthetic:	Through manipulation students utilize their fine motor skills to construct a sentence.
Linguistic:	The study of a sentence structure is Linguistic Intelligence at it's core.

Lesson Plan
Linguistic Intelligence

Subject: U.S. History Class
Grade: 12th Grade

I. GOAL

Students will enhance their knowledge of the events proceeding the Civil War.

II. OBJECTIVES

Students will be able to analyze and synthesize the material presented through writing journals.

III. MATERIALS

Paper, pen

IV. ACTIVITIES

Students will choose a pivotal person involved in the events leading up to the Civil War. For example, students may choose Abraham Lincoln, Stephen Douglas, John Brown, Dred Scott, Robert E. Lee, James Buchanan to name a few. Student's choices must meet the approval of the instructor. Once the student chooses a figure, they are to write daily journals about events they discuss in class. They are to peer into the psyche of these men and women and creatively write what they believe these people are going through at this time. The journals should last as long as the class spends on the theme of the Civil War.

V. EVALUATION

Students will be evaluated through their journals.

Linguistic Intelligence:

Students who possess strengths in Linguistic Intelligence will be able to Demonstrate their knowledge of the Civil War through their writings.

Other Intelligences involved in this lesson:

Intrapersonal: The act of writing in a journal is deeply rooted in self-reflection.

Lesson Plan
Logical Intelligence

Subject: English Class
Grade: Sixth Grade

I. GOALS

Students will enhance their reading comprehension skills.

II. OBJECTIVES

Students will be able to place paragraphs of a short story in the proper order.

III. MATERIALS

Short story handouts (paragraphs are cut out individually), construction paper, paper, glue and/or tape, envelopes

IV. ACTIVITIES

Students will be given an envelope filled with pieces of paper. Each piece of paper will contain a paragraph from a short story. Students are to read each paragraph and arrange them in order for the story to make sense. Students will manipulate the paragraphs and glue and/or tape each paragraph onto a piece(s) of construction paper when they believe they have the order correct.

(Note: this activity can be done alone or within cooperative groups.)

V. EVALUATION

Students will be evaluated through observation and the collection of their stories.

Logical Intelligence:

Students who have strengths in Logical Intelligence will be motivated to participate in an activity such as this, because they enjoy putting things in order. By utilizing their strengths, a teacher can build on other abilities, for example, reading comprehension.

Other Intelligences involved in this lesson:

Kinesthetic: Students are learning through doing. By manipulating the story, the students can use their strengths to learn a new skill.

Intrapersonal: If this lesson is done individual, Intrapersonal Intelligence is being tapped, because they can reflect on the story they are reading.

Linguistic: The reading activity itself suggests a skill that Linguistic Intelligent individuals would do well in.

Spatial: Through visualizing the story in their mind's eye, students can recreate the story in their head and then put it to paper.

Interpersonal: If this lesson is done in cooperative groups, the students with Interpersonal Intelligence will benefit.

Lesson Plan
Musical Intelligence

Subject: Social Studies
Grade: Seventh Grade

I. GOAL

Students will enhance their knowledge of the fifty states.

II. OBJECTIVES

Students will be able to identify and produce samples of music that is indigenous to their selected state.

III. MATERIALS

Record player, tape player, CD player

IV. ACTIVITIES

Students will work alone or in cooperative groups in this lesson. A state is either selected or given to an individual or group. The student(s) is then required to research that particular state and find out what type(s) of music are indigenous to that area. Students are to research and check out forms of music from the school or local library. They are also required to develop a two to three page paper regarding the origins of that music. Once the project is completed they are to present their findings to the class.

V. EVALUATION

Students are evaluated through observation and by the research paper.

Musical Intelligence:

Students who have strengths in Musical Intelligence will be encouraged to learn about the culture and history of a particular state because of the musical aspect of this lesson. By using music, they will be motivated and have a greater chance of understanding and remembering material.

Other Intelligences involved in this lesson:

Linguistic: By having students write a reaction paper, students with Linguistic Intelligence can use their strengths to succeed.

Intrapersonal: If this lesson is done individually, students with Intrapersonal Intelligence will be able to reflect on the subject.

Interpersonal: If this lesson is done in cooperative groups, students will interact with one another, thus benefiting the student whom possesses Interpersonal Intelligence.

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